Devices, Inc.

MOS AND JUNCTION FIELD EFFECT TRANSISTOR CHIPS

The following is the product code index for J-FET and MOS FET DIE/WAFERS having 2N, 3N JEDEC prefixes.

This product code index is Solitron San Diego's standard for Q. A. production, marketing and sales.

All products that deviate from the standard JEDEC electrical parameters or the following conditions must be assigned a Solitron special house number (SXXXX). These exact deviations must be in the form of a letter, TWX or print.

KDXXXX	Tested die packaged in carrier arrays (waffle pack)
KVXXXX	Tested die packaged in freon filled vials.
WCXXXX	Unprobed wafers classed into specified JEDEC part number (S), Not scribed or sawed.
WDXXXX	Tested and inked wafer, sawed and broken on expanded plastic.
WWXXXX	Tested and inked wafer, Not scribed or sawed.

1. The above part numbers meet or exceed Solitron's QA 86 optical requirements.

2. To order or identify optical requirements to MIL-SDT-750 method 2072 for J-FETS or MIL-SDT-883, method 2010 for MOS FETS, use the suffix "M"

(Example: PN 2N5114 to MIL-SDT-750, method 2072, die in carrier waffle pack use KD5114M as the part number).

3. All red inked die on probed wafers do not meet specified electrical parameters.

JEDEC	GEOMETRY	JEDEC	GEOMETRY	JEDEC	GEOMETRY	JEDEC	GEOMETRY
2N2386	FP 5.3	2N3367	FN 22.2	2N3686A	FN 22.2	2N3957	DMN 23.2
2N2497	FP 5.3	2N3368	FN 3.6	2N3687	FN 22.2	2N3958	FN 22.2
2N2498	FP 5.3	2N3369	FN 22.2	2N3687A	FN 22.2	2N3958	DMN 23.2
2N2499	FP 5.3	2N3370	FN 22.2	2N3695	FP 22.2	2N3966	FN 2.5
2N2500	FP 5.3	2N3376	FP 22.2	2N3696	FP 22.2	2N3967	FN 2.5
2N2606	FP 22.2	2N3378	FP 22.2	2N3697	FP 22.2	2N3968	FN 3.6
2N2607	FP 22.2	2N3379	FP 22.2	2N3698	FP 22.2	2N3969	FN 3.6
2N2607	FP 5.3	2N3380	FP 22.2	2N3819	FN 2.5	2N3970	FN 7.1
2N2608	FP 22.2	2N3382	FP 7.3	2N3820	FP 5.3	2N3971	FN 7.1
2N2608	FP 5.3	2N3384	FP 7.3	2N3821	FN 3.6	2N3972	FN 7.1
2N2609	FP 5.3	2N3386	FP 7.3	2N3822	FN 3.6	2N3993	FP 7.3
2N2841	FP 22.2	2N3436	FN 3.6	2N3823	FN 2.5	2N3994	FP 7.3
2N2842	FP 22.2	2N3437	FN 3.6	2N3824	FN 3.6	2N4003	FN 2.5
2N2842	FP 5.3	2N3438	FN 3.6	2N3909	FP 5.3	2N4065	FMP 1.1
2N2843	FP 5.3	2N3452	FN 2.2	2N3909A	FP 5.3	2N4084	DMN 113.3
2N2844	FP 5.3	2N3453	FN 2.2	2N3920A	DMN 113.3	2N4084	FN 5.5
2N3068	FP 22.2	2N3454	FN 2.2	2N3921	FM 5.5	2N4085	DMN 113.3
2N3069	FP 22.2	2N3456	FN 2.2	2N3921	DMN 113.3	2N4085	FN 5.5
2N3070	FP 5.3	2N3457	FN 2.2	2N3921	FN 3.6	2N4091	FN 7.1
2N3071	FP 22.2	2N3458	FN 3.6	2N3922	FN 5.5	2N4092	FN 7.1
2N3328	FP 22.2	2N3459	FN 3.6	2N3954	FN 22.2	2N4093	FN 7.1
2N3329	FP 5.3	2N3460	FN 22.2	2N3954	DMN 23.2	2N4116	FN 2.5
2N3330	FP 5.3	2N3684	FN 22.2	2N3955	FN 22.2	2N4117	FN 2.2
2N3331	FP 5.3	2N3684A	FN 22.2	2N3955	DMN 23.2	2N4117A	FN 2.2
2N3332	FP 5.3	2N3685	FN 22.2	2N3956	FN 22.2	2N4118	FN 2.2
2N3365	FN 22.2	2N3685A	FN 22.2	2N3956	DMN 23.2	2N4118A	FN 2.2
2N3366	FN 22.2	2N3686	FN 22.2	2N3957	FN 22.2	2N4119	FN 2.2

Note: Where several elements are listed against a Jedec part number, the first listed is prime for the Jedec part number. For critical designs or applications the factory should be consulted.

MOS AND JUNCTION FIELD EFFECT TRANSISTOR CHIPS

JEDEC	GEOMETRY		JEDEC	GEOMETRY		JEDEC	GEOMETRY		JEDEC	GEOMETRY	
2N4119A	FN	2.2	2N4868	FN	88.8	2N5434	FN	9.0	2N5638	FN	7.1
2N4139	FN	88.8	2N4868	FN	39.8	2N5452	FN	22.2	2N5639	FN	7.1
2N4220	FN	22.2	2N4868A	FN	88.8	2N5452	DMN	23.3	2N5640	FN	7.1
2N4220A	FN	22.2	2N4869	FN	88.8	2N5453	FN	22.2	2N5653	FN	7.1
2N4221	FN	3.6	2N4869A	FN	88.8	2N5453	DMN	23.2	2N5654	FN	7.1
2N4221	FN	5.5	2N4977	FN	9.1	2N5453	DMN	23.2	2N5668	FN	2.5
2N4221A	FN	3.6	2N4978	FN	9.1	2N5454	FN	22.2	2N5669	FN	2.5
2N4222	FN	3.6	2N4979	FN	7.1	2N5454	DMN	23.2	2N5670	FN	2.5
2N4222	FN	5.5	2N5013	FN	2.5	2N5457	FN	2.5	2N5902	FN	2.2
2N4222A	FN	3.6	2N5014	FN	2.5	2N5458	FN	2.5	2N5902	DMN	2.4
2N4223	FN	2.5	2N5018	FP	7.3	2N5459	FN	2.5	2N5903	FN	2.2
2N4224	FN	2.5	2N5019	FP	7.3	2N5460	FP	5.3	2N5903	DMN	2.4
2N4302	FN	22.2	2N5020	FP	5.3	2N5461	FP	5.3	2N5904	FN	2.2
2N4303	FN	22.2	2N5021	FP	5.3	2N5462	FP	5.3	2N5904	DMN	2.4
2N4304	FN	22.2	2N5033	FP	5.3	2N5463	FP	5.3	2N5905	FN	2.2
2N4338	FN	22.2	2N5045	FN	3.6	2N5464	FP	5.3	2N5905	DMN	2.4
2N4339	FN	22.2	2N5046	FN	3.6	2N5465	FP	5.3	2N5906	FN	2.2
2N4340	FN	22.2	2N5047	FN	3.6	2N5484	FN	2.5	2N5906	DMN	2.4
2N4341	FN	22.2	2N5078	FN	2.5	2N5485	FN	2.5	2N5907	FN	2.2
2N4341	FN	3.6	2N5105	FN	2.5	2N5486	FN	2.5	2N5907	DMN	2.4
2N4343	FP	5.3	2N5114	FP	7.3	2N5515	FN	39.8	2N5908	FN	2.2
2N4352	FMP	1.1	2N5115	FP	7.3	2N5516	FN	39.8	2N5908	DMN	2.4
2N4353	FMPZ	1.1	2N5116	FP	7.3	2N5517	FN	39.8	2N5909	FN	2.2
2N4360	FP	5.3	2N5163	FN	3.6	2N5518	FN	39.8	2N5909	DMN	2.4
2N4381	FP	5.3	2N5196	FN	22.2	2N5519	FN	39.8	2N5911	DMN	36.1
2N4382	FP	5.3	2N5197	FN	22.2	2N5520	FN	39.8	2N5911	FN	36.1A
2N4391	FN	7.1	2N5198	FN	22.2	2N5521	FN	39.8	2N5912	DMN	36.1
2N4392	FN	7.1	2N5199	FN	22.2	2N5522	FN	39.8	2N5912	FN	36.1A
2N4393	FN	7.1	2N5245	FN	2.5	2N5523	FN	39.8	2N5949	FN	2.5
2N4416	FN	2.5	2N5246	FN	2.5	2N5524	FN	39.8	2N5950	FN	2.5
2N4416A	FN	2.5	2N5247	FN	2.5	2N5545	FN	3.6	2N5951	FN	2.5
2N4417	FN	2.5	2N5248	FN	2.5	2N5545	DMN	23.2	2N5952	FN	2.5
2N4445	FN	9.1	2N5268	FP	5.3	2N5546	FN	3.6	2N5953	FN	2.5
2N4446	FN	9.1	2N5319	FP	7.3	2N5546	DMN	23.2	2N6656	FVNZ	1.8
2N4447	FN	9.1	2N5339	FN	22.2	2N5547	FN	3.6	2N6657	FVNZ	1.8
2N4448	FN	9.1	2N5358	FN	22.2	2N5547	DMN	23.2	2N6658	FVNZ	1.8
2N4856	FN	7.1	2N5360	FN	22.2	2N5555	FN	2.5	2N6659	FVNZ	1.8
2N4856A	FN	7.1	2N5361	FN	22.2	2N5556	FN	2.5	2N6660	FVNZ	1.8
2N4857	FN	7.1	2N5362	FN	3.6	2N5557	FN	2.5	2N6661	FVNZ	1.8
2N4857A	FN	7.1	2N5363	FN	2.5	2N5558	FN	2.5	3N163	FMP	1.1
2N4858	FN	7.1	2N5364	FN	2.5	2N5562	FN	5.5	3N164	FMP	1.1
2N4858A	FN	7.1	2N5391	FN	88.8	2N5563	FN	5.5	3N165	DFMP	1.0
2N4859	FN	7.1	2N5397	FN	36.1	2N5564	FN	7.1	3N166	DFMP	1.0
2N4859A	FN	7.1	2N5398	FN	36.1	2N5565	FN	7.1	3N172	FMPZ	1.1
2N4860	FN	7.1	2N5432	FN	9.1	2N5566	FN	7.1	3N173	FMPZ	1.1
2N4861	FN	7.1	2N5432	FN	9.0	2N5591	FN	88.8	3N189	DFMPZ	2.0
2N4861A	FN	7.1	2N5433	FN	9.1	2N5592	FN	88.8	3N190	DFMP	2.0
2N4867	FN	39.8	2N5433	FN	9.0	2N5593	FN	88.8	3N191	DFMP	2.0
2N4867A	FN	39.8	2N5434	FN	7.1	2N5594	FN	88.8			

Note: Where several elements are listed against a Jedec part number, the first listed is prime for the Jedec part number. For critical designs or applications the factory should be consulted.

MOS AND JUNCTION FIELD EFFECT TRANSISTOR CHIPS

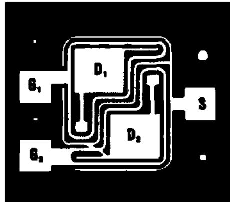
JEDEC	GEOMETRY	
J108	FN	9.1
J109	FN	9.1
J110	FN	9.1
J111	FN	7.1
J112	FN	7.1
J113	FN	7.1
J174	FP	7.3
J175	FP	7.3
J176	FP	7.3
J177	FP	7.3
J201	FN	22.2
J202	FN	22.2
J203	FN	3.6
J210	FN	36.1
J211	FN	36.1
J212	FN	36.1
J270	FP	7.3
J271	FP	7.3
J300	FN	36.1
J304	FN	2.5
J305	FN	2.5
J309	FN	71.1
J310	FN	71.1
J410	DMN	23.2
J411	DMN	23.2
J412	DMN	23.2
KK4391	FN	7.1
KK4392	FN	7.1
KK4393	FN	7.1
MEM511	FMPZ	1.1
MFE823	FMP	1.1
MFE823	FMP	1.1
MFE2000	FN	2.5
MFE2001	FN	2.5
MFE2004	FN	7.1
MFE2005	FN	7.1
MFE2006	FN	7.1
MFE2133	FN	7.1
MPF102	FN	2.5
MPF108	FN	2.5
MPF109	FN	3.6
MPF111	FN	2.5
MPF112	FN	2.5
P1086E	FP	7.3
P1087E	FP	7.3
SDF500	FN	39.8
SDF501	FN	39.8
SDF502	FN	39.8
SDF503	FN	39.8
SDF504	FN	39.8
SDF505	FN	39.8
SDF506	FN	39.8
SDF507	FN	39.8
SDF508	FN	39.8
SDF509	FN	39.8
SDF510	FN	39.8
SDF511	FN	39.8
SDF512	FN	39.8
SDF513	FN	39.8
SDF514	FN	39.8
SDF515	FN	39.8
SDF530	DCN	2.3
SDF531	DCN	2.3
SDF532	DCN	2.3
SDF533	DCN	2.3
SDF534	DCN	2.3
SDF535	DCN	2.3
SDF536	DCN	2.3
SDF537	DCN	2.3
SDF600	DMN	113.3
SDF601	DMN	113.3
SDF602	DMN	113.3
SDF603	DMN	113.3
SDF604	DMN	113.3
SDF605	DMN	113.3
SDF1001	FN	9.0
SDF1002	FN	9.0
SDF1003	FN	9.0
SDF1004	FN	9.0
SDF1005	FN	9.0
SDF8200	FMN	35.3
SDF8201	FMNZ	35.3
SDF8202	FMN	35.3
SDF8203	FMNZ	35.3
SDF9210	FMN	35.3
SDF9211	FMNZ	35.3
SDF9212	FMN	35.3
SDF9213	FMNZ	35.3
SDF9214	DMN	35.3
SDF9215	FMNZ	35.3
SFN030	SVN	405
SFN050	SVN	415
SFN105	SVN	105
SFN120	SVN	402
SFN121	SVN	402
SFN130	SVN	405
SFN150	SVN	415
SFN203	SVN	105
SFN220	SVN	402
SFN230	SVN	405
SFN250	SVN	415
SFN320	SVN	402
SFN330	SVN	405
SFN350	SVN	415
SFN420	SVN	402
SFN430	SVN	405
SFN450	SVN	415
SFNF061	SVN	101
SFNF065	SVN	105
SFNF101	SVN	101
SFNF105	SVN	105
SFNF120	SVN	402
SFNF121	SVN	402
SFNF201	SVN	101
SFNF203	SVN	105
SFNF220	SVN	402
SFNF320	SVN	402
SFNF420	SVN	402
SFNO065	SVN	105
SFNS061	SVN	101
SFNS101	SVN	101
SFNS201	SVN	101
SU2080	DMN	113.3
SU2081	DMN	113.3
SU2365	DMN	113.3
SU2366	DMN	113.3
SU2367	DMN	113.3
SU2368	DMN	113.3
SU2369	DMN	113.3
SVN33AJ	FVN	1.8
SVN33AK	FVN	1.8
SVN66AJ	FVN	1.8
SVN66AK	FVN	1.8
SVN98AJ	FVN	1.8
SVN98AK	FVN	1.8
TIS58	FN	2.5
TIS59	FN	2.5
TIS73	FN	7.1
TIS74	FN	7.1
TIS75	FN	7.1
TIS88A	FN	2.5
U200	FN	7.1
U201	FN	7.1
U202	FN	7.1
U231	DMN	23.2
U232	DMN	23.2
U233	DMN	23.2
U234	DMN	23.2
U235	DMN	23.2
U257	FN	36.1
U257	DMN	36.1A
U304	FP	7.3
U305	FP	7.3
U306	FP	7.3
U308	FN	71.1
U309	FN	71.1
U310	FN	71.1
U311	FN	71.1
U312	FN	36.1
U314	FN	36.1
U315	FN	36.1
U316	FN	71.1
U320	FN	9.1
U321	FN	9.1
U322	FN	9.1
U350	FN	71.1
U421	DMN	2.4
U422	DMN	2.4
U423	DMN	2.4
U424	DMN	2.4
U425	DMN	2.4
U426	DMN	2.4
U430	FN	71.1
U431	FN	71.1
U1897E	FN	7.1
U1898E	FN	7.1
U1899E	FN	7.1
U1994E	FN	2.5
UC155	FN	2.5
UC200	FN	5.5
UC201	FN	5.5
UC210	FN	5.5
UC220	FN	5.5
UC240	FN	88.8
UC241	FN	88.8
UC250	FN	7.1
UC251	FN	7.1
UC400	FP	7.1
UC401	FP	5.3
UC410	FP	5.3
UC420	FP	5.3
UC450	FP	7.3
UC451	FP	7.1
UC714	FN	2.5
UC734	FN	2.5
UC1700	FMP	1.1
UC1702	FMP	1.1
UC1764	FMP	1.1

Note: Where several elements are listed against a Jedec part number, the first listed is prime for the Jedec part number. For critical designs or applications the factory should be consulted.

P-CHANNEL ENHANCEMENT DUAL MOS FET

CHIP NUMBER

DFMP1



.026" (0.660mm)

.035" (0.889mm)

Die Size: 26 x 35 (mils) 0.660 x 0.889(mm)
Pad Size: 4 x 4 (mils) 0.102 x 0.102(mm)
BODY-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

TYPICAL ELECTRICAL CHARACTERISTICS

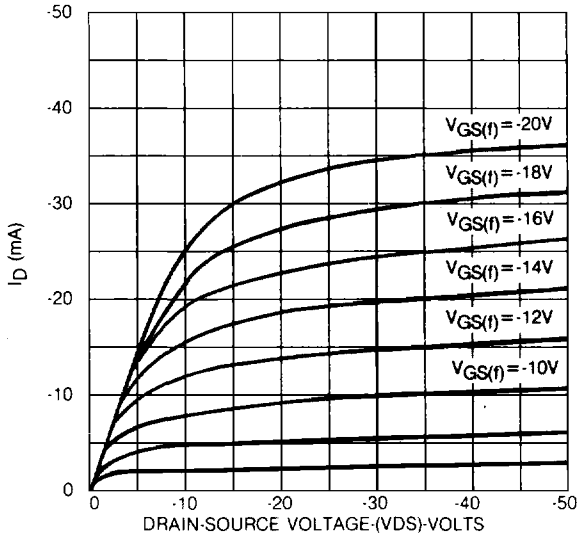
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{DSS}	-35			V	V_{GS} = 0, I_D = 10μA
I_{DSS}		10	400	pA	V_{GS} = 0, V_{DS} =-20V
g_{fs}	1500		3000	μmho	V_{DS} =-15V, I_D, = -10mA, f = 1KHz
I_{GSS}		0.1	10	pA	V_{GS} =-40, V_{DS} = 0
DV_{GS}		20	200	mV	V_{DS} =-15V, I_D = -500μA
V_{GS}	-2.0			V	V_{DS} =-15V, I_D = -10μA
C_{rss}		0.4	0.7	pF	V_{DS} =-15V, I_D = -10mA, f = 1MHz
C_{iss}		2.0	3.0	pF	V_{DS} =-15V, I_D = -10mA, f =1MHz
C_{iss}		2.0	3.0	pF	V_{DS} =-15V, I_D = -10mA, f = 1MHz
$\bar{e}_n$		50		nV/√Hz	V_{DS} =-15V, I_D = -1mA, f = 1KHz

TYPICAL DEVICE TYPES: 3N165, 3N166

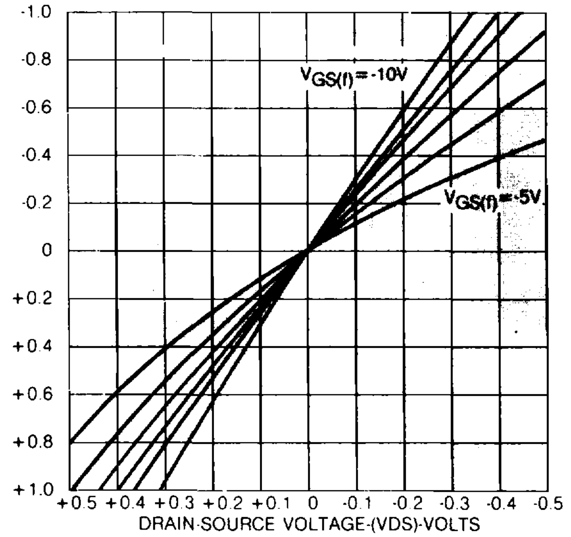
P-CHANNEL ENHANCEMENT DUAL MOS FET

CHIP TYPE DFMP1

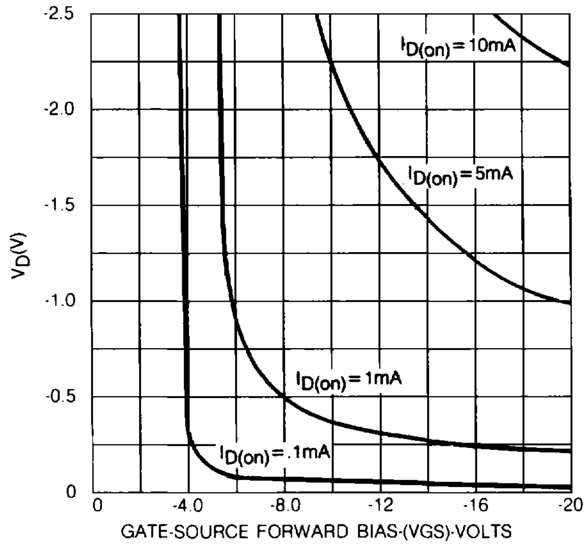
DRAIN CHARACTERISTIC
COMMON-SOURCE



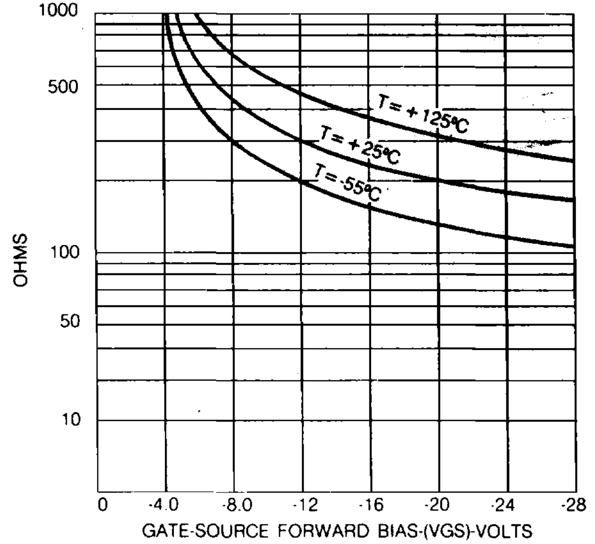
LOW LEVEL
DRAIN CHARACTERISTIC



LOW-LEVEL "ON" DRAIN-SOURCE VOLTAGE
VS GATE-SOURCE BIAS VOLTAGE



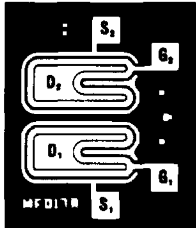
STATIC DRAIN-SOURCE ON RESISTANCE
VS GATE-SOURCE BIAS

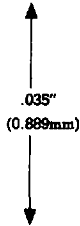


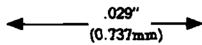
P-CHANNEL ENHANCEMENT DUAL MOS FET

CHIP NUMBER

DFMP2







Die Size: 29 x 35 (mils)
0.737 x 0.889(mm)
Pad Size: 5 x 5 (mils)
0.127 x 0.127(mm)
BODY-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

TYPICAL ELECTRICAL CHARACTERISTICS

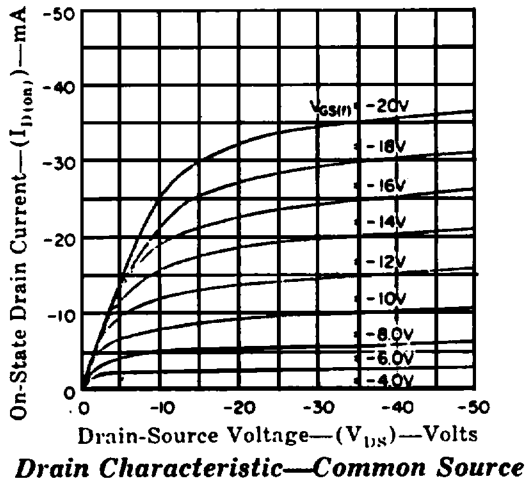
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VDSS}	-30		-60	V	V_{GS} = 0, I_D = -10μA
I_{DSS}		-10	-500	pA	V_{DS} = -15V, V_{GS} = 0, V_{GB} = 0
g_{fs}	1500		4000	μmho	V_{DS} = -15V, I_D, = -10mA, f = 1KHz
I_{SDS}			350	pA	V_{GD} = 0, V_{SD} = -15V, V_{DB} = 0
r_{DS}			300	Ω	V_{GS} = -20V, I_D = -100μA
$V_{GS(th)}$	-1.5		-5.0	V	V_{DS} = -15V, I_D = -100μA
C_{rss}		.8	1.5	pF	V_{DS} = -15V, I_D = -10μA, f = 1MHz
C_{iss}		3.3	4.5	pF	V_{DS} = -15V, I_D = -10mA, f = 1MHz
$\bar{e}_n$		50		nV/√Hz	V_{DS} = -15V, I_D = -1mA, f = 1KHz
$V_{GS(th\ (1-2)}$		25	200	mV	V_{DS} = -15V, I_D = -500μA

TYPICAL DEVICE TYPES: 3N190, 3N191

P-CHANNEL ENHANCEMENT DUAL MOS FET

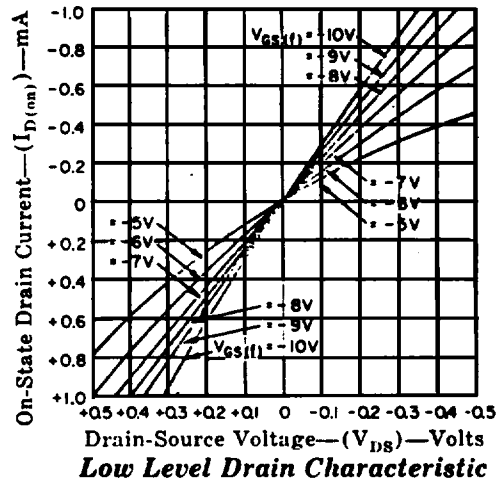
CHIP TYPE DFMP 2

FIGURE 1



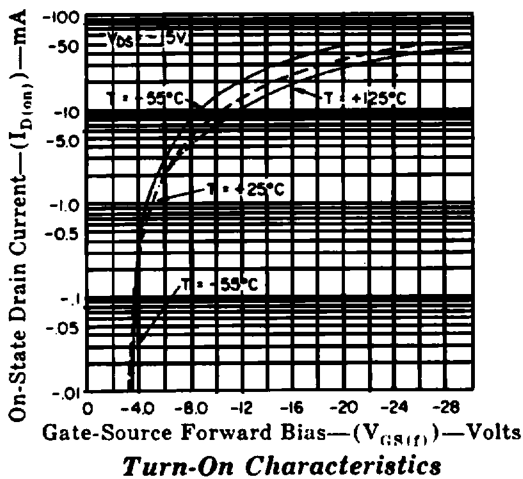
Drain Characteristic—Common Source

FIGURE 2



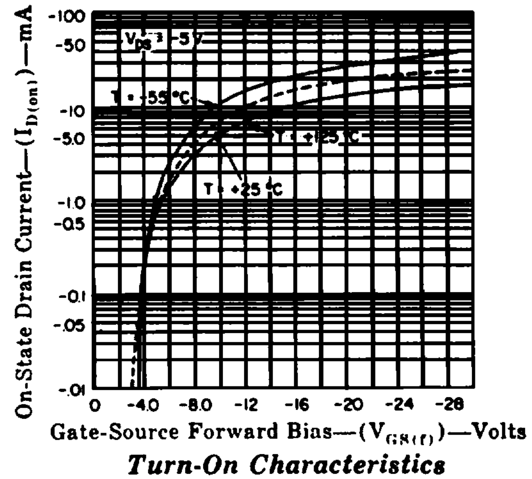
Low Level Drain Characteristic

FIGURE 3



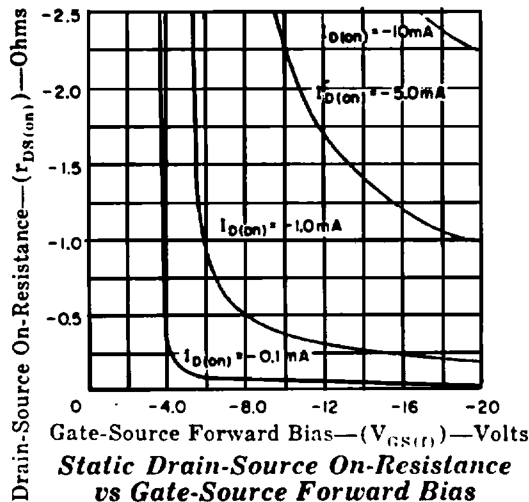
Turn-On Characteristics

FIGURE 4



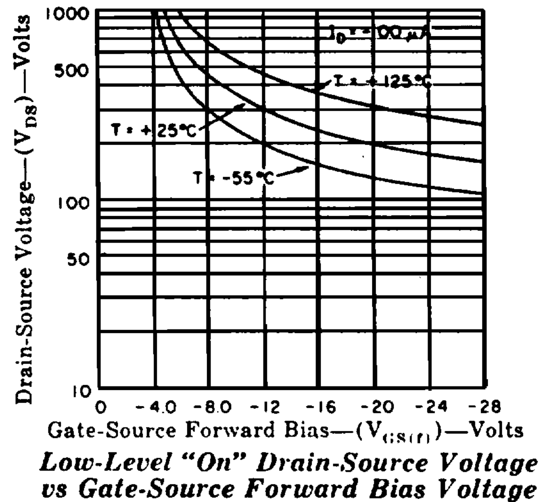
Turn-On Characteristics

FIGURE 5



Static Drain-Source On-Resistance vs Gate-Source Forward Bias

FIGURE 6

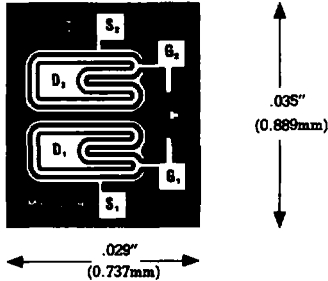


Low-Level "On" Drain-Source Voltage vs Gate-Source Forward Bias Voltage

P-CHANNEL ENHANCEMENT DUAL MOS FET

CHIP NUMBER

DFMPZ2



Die Size: 29 x 35 (mils)
0.737 x 0.889(mm)
Pad Size: 5 x 5 (mils)
0.127 x 0.127(mm)
BODY-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

TYPICAL ELECTRICAL CHARACTERISTICS

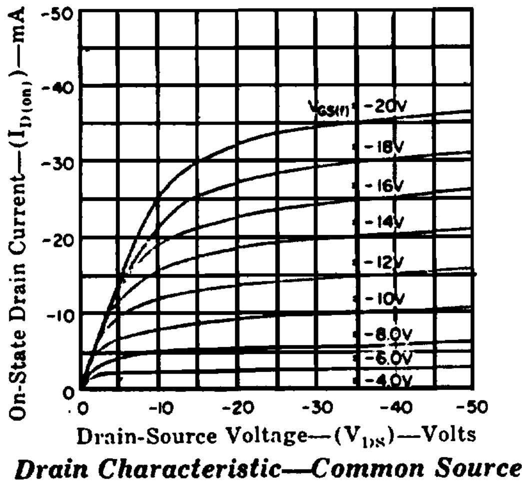
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{DSS}	-30		-60	V	V_{GS} = 0, I_D = -10μA
I_{DSS}		-40	500	pA	V_{DS} = -15V, V_{GS} = 0, V_{BS} = 0
g_{fs}	1500		4000	μmho	V_{DS} = -15V, I_D, = -10mA, f = 1KHz
I_{SDS}			800	pA	V_{GS} = 0, V_{SD} = -15V, V_{DB} = 0
r_{DS}		220	350	Ω	V_{GS} = -20V, I_D = -100μA
$V_{GS(th)}$	-1.5		-5.0	V	V_{DS} = -15V, I_D = -10μA, V_{BS} = 0
C_{rss}		1.0	1.5	pF	V_{DS} = -15V, I_D = -10mA, f = 1MHz
C_{iss}		3.5	4.5	pF	V_{DS} = -15V, I_D = -10mA, f = 1MHz
$\bar{e}_n$		50		nV/√Hz	V_{DS} = -15V, I_D = -1mA, f = 1KHz
$V_{GS(th)}$ 1-2		25	100	mV	V_{DS} = -15V, I_D = -500μA

TYPICAL DEVICE TYPES: 3N188, 3N189

P-CHANNEL ENHANCEMENT DUAL MOS FET

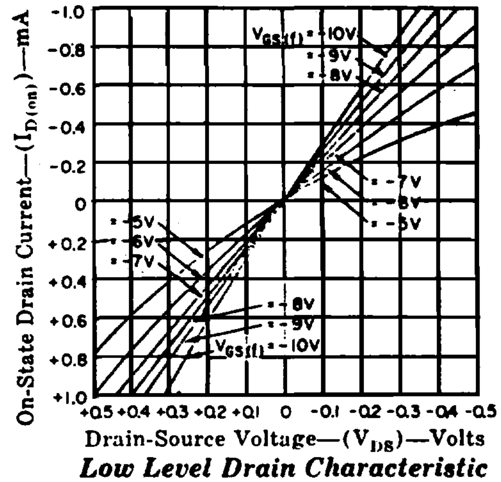
CHIP TYPE DFMPZ 2

FIGURE 1



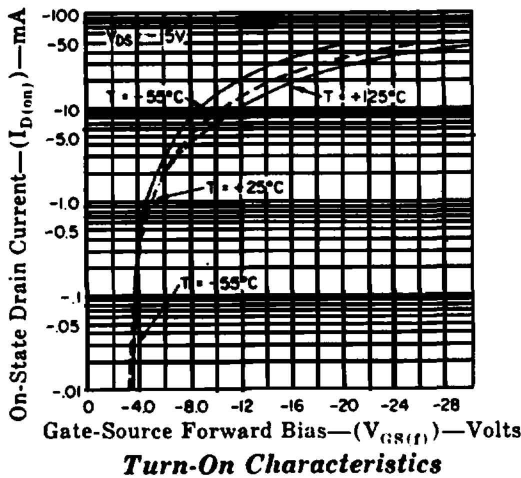
Drain Characteristic—Common Source

FIGURE 2



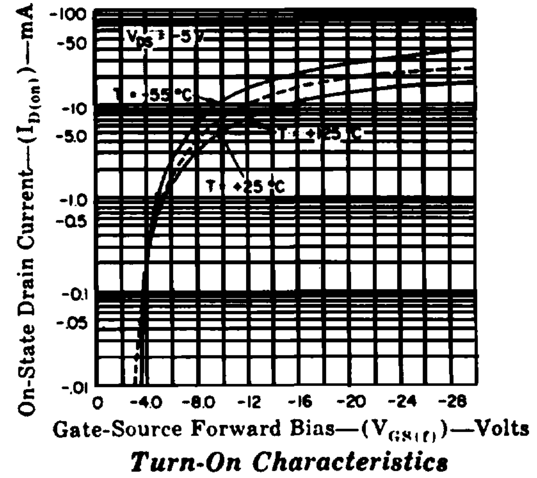
Low Level Drain Characteristic

FIGURE 3



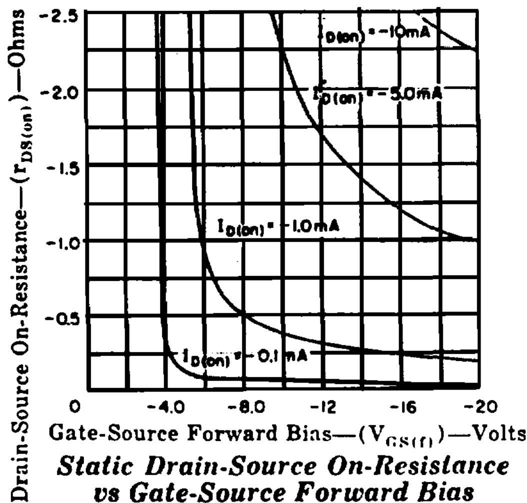
Turn-On Characteristics

FIGURE 4



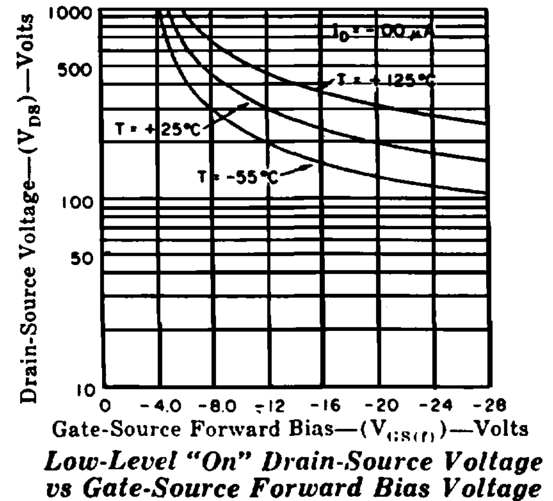
Turn-On Characteristics

FIGURE 5



Static Drain-Source On-Resistance vs Gate-Source Forward Bias

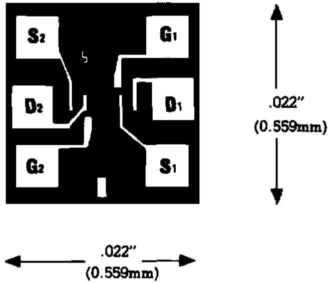
FIGURE 6



Low-Level "On" Drain-Source Voltage vs Gate-Source Forward Bias Voltage

N-CHANNEL DUAL JUNCTION FET

CHIP NUMBER
DMN2.4



Die Size: 22 x 22 (mils)
0.559 x 0.559(mm)
Pad Size: 4 x 4 (mils)
0.102 x 0.102(mm)

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

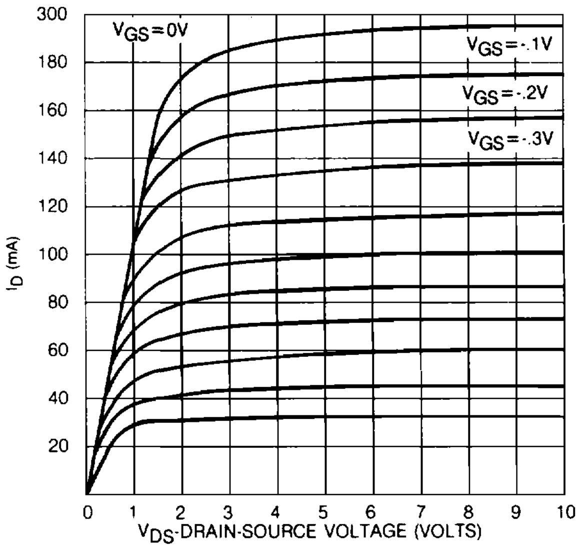
TYPICAL ELECTRICAL CHARACTERISTICS

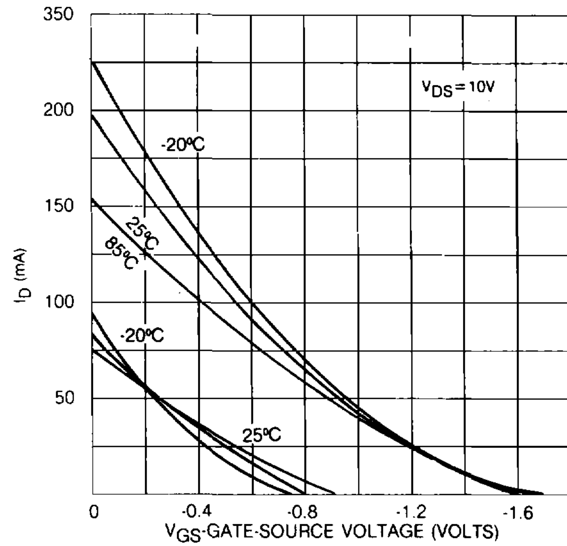
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	- 40	-55	- 60	V	V_{DS} = 0, I_G = -1μA
I_{GSS}		0.2	5	pA	V_{DS} = 0, V_{GS} = -20V
I_{DSS}	30		500	μA	V_{DS} = 10V, V_{GS}, = 0
V_p	- 0.6		– 4.5	V	V_{DS} = 10, I_D = 1nA
g_{fs}	70	200	350	μS	V_{DS} = 10V, V_{GS} = 0, F = 1KHz
C_{iss}		2.8	3.5	pF	V_{DS} = 10V, V_{GS} = 0, f = 1MHz
C_{rss}		0.7	1.5	pF	V_{DS} = 10V, V_{GS} = 0, f = 1MHz
Y_{os}		.02	1.0	μS	V_{DS} = 10V, I_D = 30μA, 1KHz

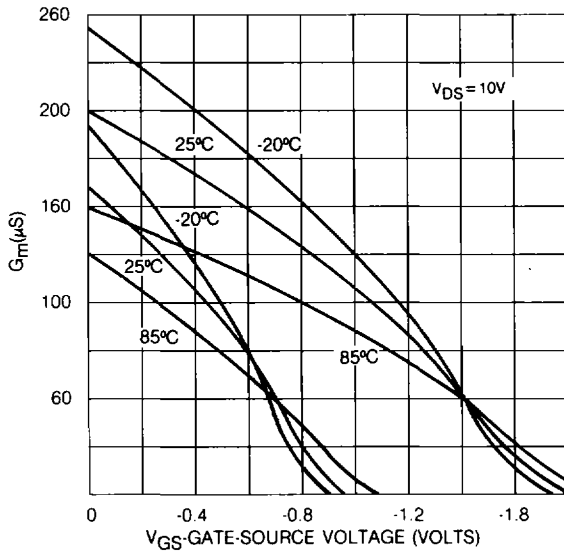
TYPICAL DEVICE TYPES: 2N5902 - 2N5909

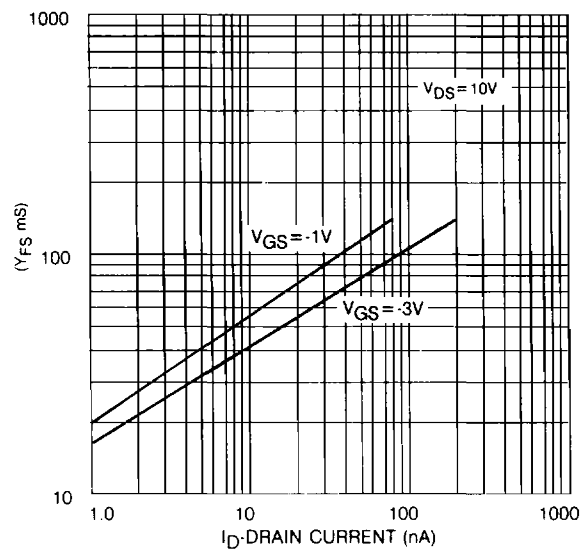
N-CHANNEL DUAL JUNCTION FET

CHIP TYPE DMN2.4





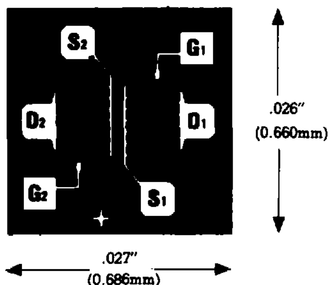




N-CHANNEL DUAL JUNCTION FET

CHIP NUMBER

DMN36.1A



Die Size: .26 x 27 (mils)
0.660 x 0.686(mm)

Pad Size: 3.5 x 3.5(mils)
0.089 x 0.089(mm)

CONTACT METALLIZATION

Top Contact: > 12,000
Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

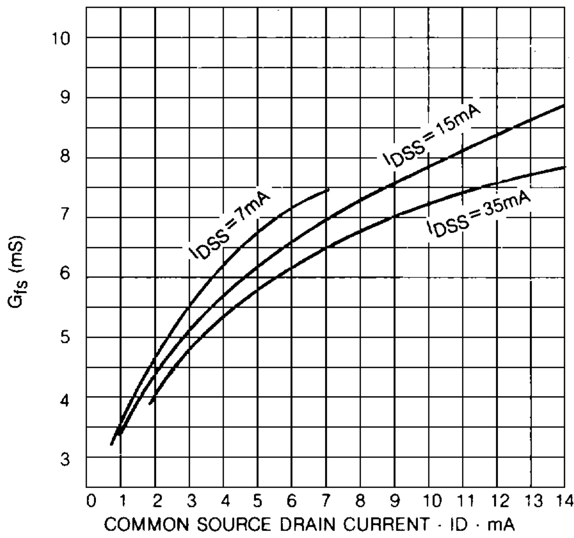
TYPICAL ELECTRICAL CHARACTERISTICS

PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	-25	-35		V	V_{DS} = 0, I_G = 1μA
I_{DSS}	5	20	40	mA	V_{DS} = 10V, V_{GS} = 0
V_p	-1		-6	V	V_{DS} = 10V, I_D, = 1nA
I_{GSS}		10	100	pA	V_{DS} = 0, V_{GS} = -15V
g_{fs}	4.5	6.0	10	ms	V_{DS} = 10V, I_D = 5mA, f = 1MHz
C_{rss}		1.0	1.5	pF	V_{DS} = 10V, I_D = 5mA, f = 1MHz
$\bar{e}_n$		4	20	nV/√Hz	V_{DS} = 10V, I_D = 5mA, f = 1KHz

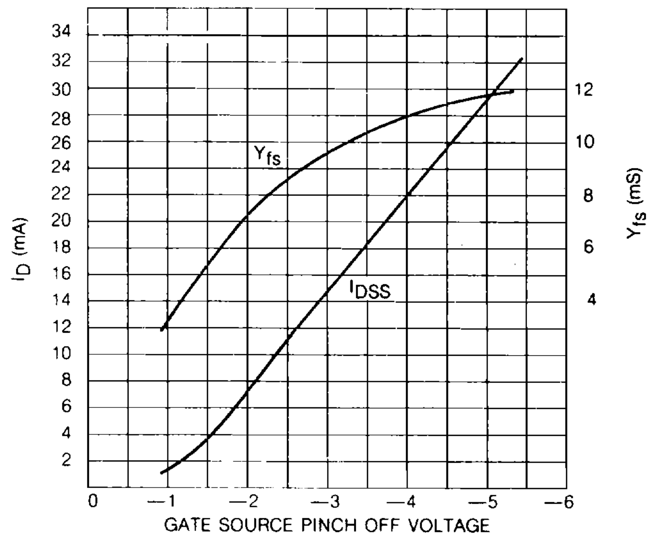
TYPICAL DEVICE TYPES: 2N5911, 2N5912, U257

CHIP TYPE DMN36.1A

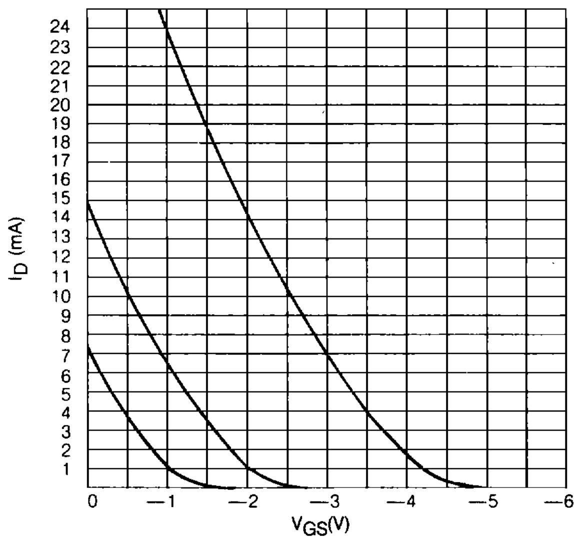
COMMON SOURCE, SHORT CIRCUIT FORWARD TRANSADMITTANCE VS OPERATING DRAIN CURRENT



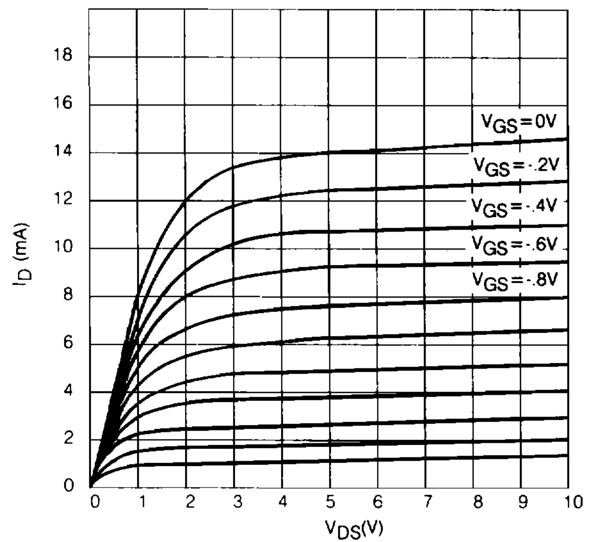
ZERO GATE VOLTAGE DRAIN CURRENT · IDSS · mA



TRANSFER CHARACTERISTIC



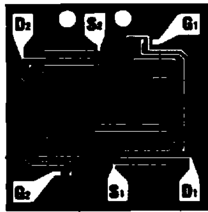
COMMON-SOURCE DRAIN CHARACTERISTICS



N-CHANNEL DUAL JUNCTION FET

CHIP NUMBER

DMN113.3



.038" (0.965mm)

.038" (0.965mm)

Die Size: 38 x 38 (mils) 0.965 x 0.965(mm)

Pad Size: 3.5 x 3.5(mils) 0.089 x 0.089(mm)

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

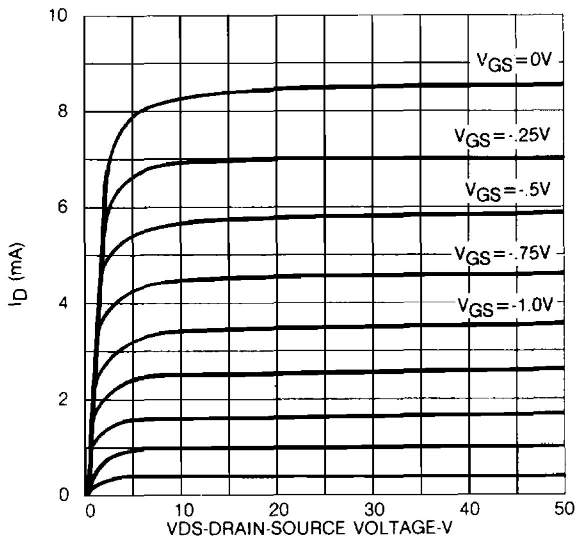
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

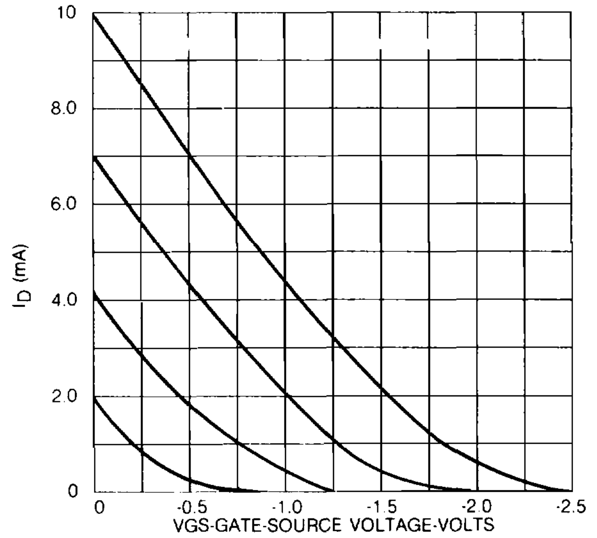
TYPICAL ELECTRICAL CHARACTERISTICS

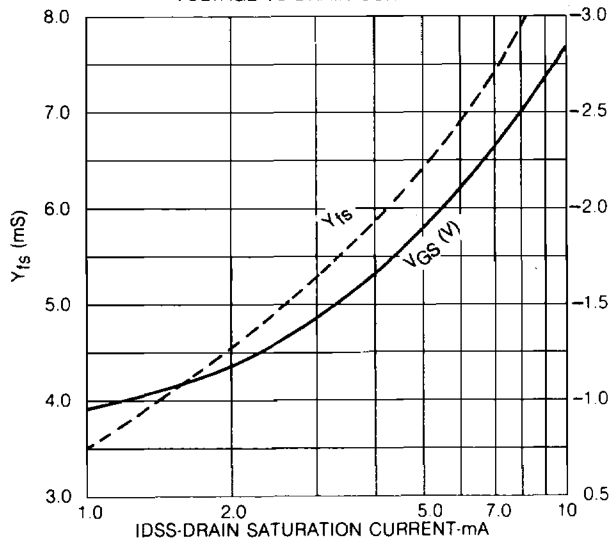
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	-30	-50	-60	V	I_D = 1μA, V_{DS} = 0
I_{GSS}		30	200	pA	V_{DS} = 0, V_{GS} = -20V
I_{DSS}	1	6	15	mA	V_{DS} = 15V, V_{GS}, = 0
V_p	-.5	-2	-4	V	V_{DS} = 15V, I_D = 1nA
g_{fs}	1000		8000	μs	V_{DS} = 15V, V_{GS} = 0, f = 1KHz
y_{OS}			10	mho	V_{DS} = 15V, I_{DG} = 700μA
C_{iss}		16	18	pF	V_{DS} = 15V, V_{GS} = 0, f = 1MHz
C_{rss}		5	6	pF	V_{DS} = 15V, V_{GS} = 0, f = 1MHz

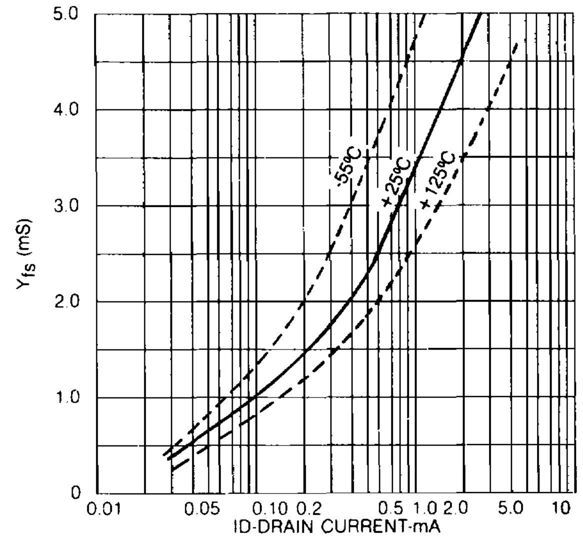
TYPICAL DEVICE TYPES: 2N3921 - 2N3922, 2N4084, 2N4085, SU2365 - SU2369, SU2080, SU2081

CHIP TYPE DMN113.3





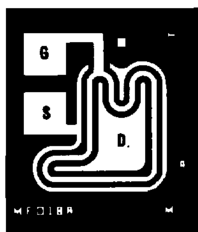




N-CHANNEL MOS FET

CHIP NUMBER

FMN1.1



Die Size: 21 x 23 (mils)
0.530 x 0.534(mils)
Pad Size: 4 x 4 (mils)
BODY-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

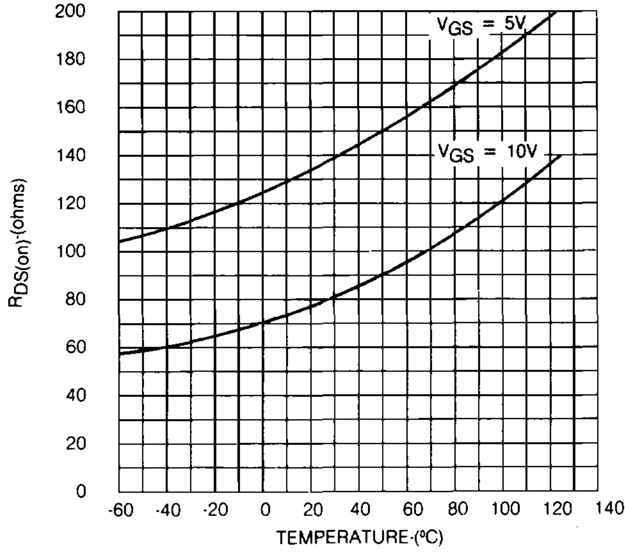
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

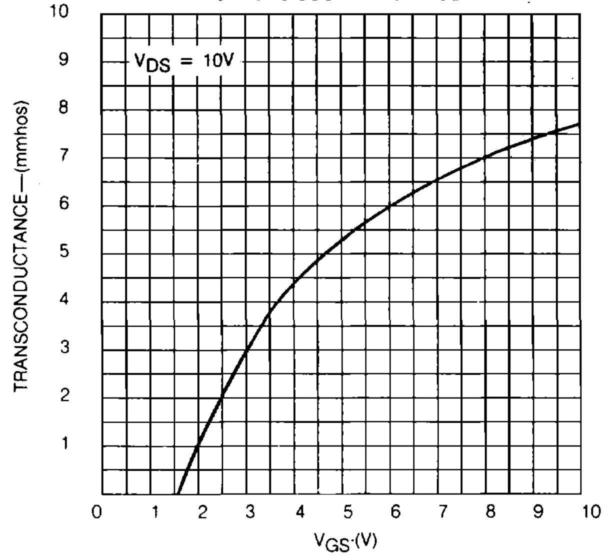
TYPICAL ELECTRICAL CHARACTERISTICS

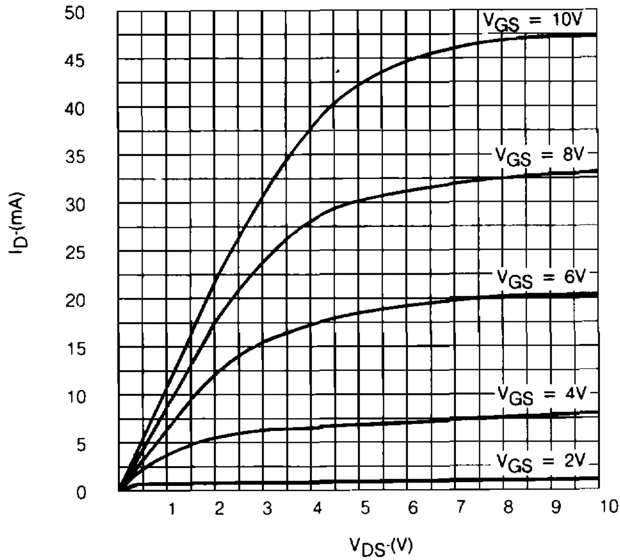
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{DSS}	25	30		V	I_D = +10 μA, V_{GS} = 0, V_{BS} = 0
I_{DSS}		10	500	pA	V_{DS} = +15V, V_{GS} = 0, V_{BS} = 0
g_{fs}	1000	2500	4000	μmho	V_{DS} = +15V, I_D, = 2mA, f = 1KHz
I_{GSS}		0.1	10	pA	V_{GS} = ±40V, V_{DS} = 0
$r_{DS(on)}$		60	195	Ω	V_{DS} = 20V, I_D = 10mA, V_{BS} = 0
$V_{GS(Th)}$	+.5	+1.5	+5.0	V	V_{DS} = +15V, I_D = +10mA, V_{BS} = 0
C_{rss}		1.0	1.3	pF	V_{DS} = +15V, I_D = +10mA, , f = 1MHz
C_{iss}		4.5	5	pF	V_{DS} = +15V, I_D = 10mA, f = 1KHz

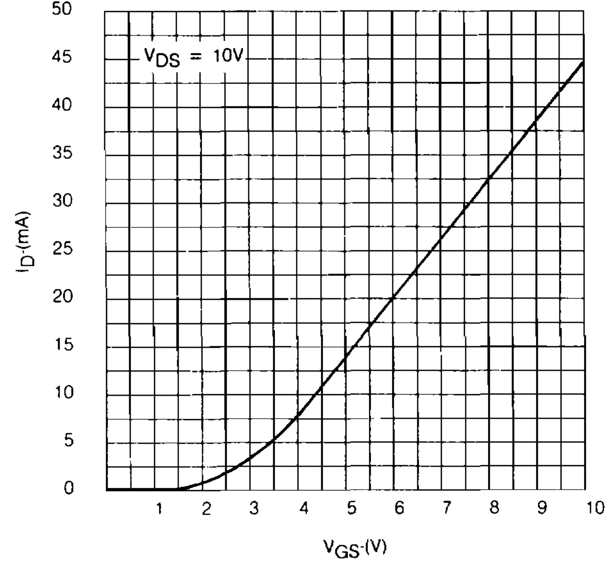
TYPICAL DEVICE TYPES: 3N169, 3N170, 3N171

CHIP TYPE FMN1.1





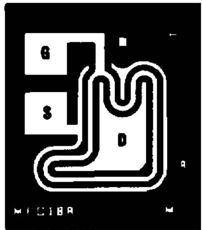




N-CHANNEL ENHANCEMENT MOS FET

CHIP NUMBER

FMN1.2



.023" (0.584mm)

.021" (0.533mm)

Die Size: 21 x 23 (mils)
0.533 x 0.584(mm)
Pad Size 4 x 4 (mils)
BODY-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

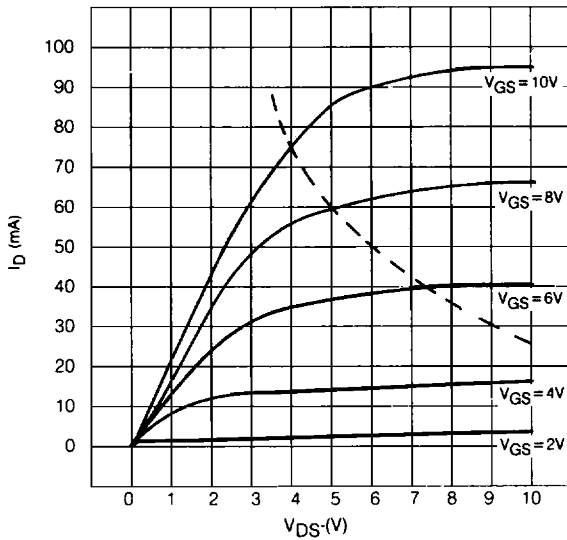
TYPICAL ELECTRICAL CHARACTERISTICS

PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VDSS}	20	33		V	I_D = 1.0μA, V_{GS} = 0, V_{BS} = 0
I_{DSS}		.01	10	nA	V_{DS} = 10V, V_{GS} = 0, V_{BS} = 0
I_{GSS}		0.2	5	pA	V_{GB} = ±25V, $V_{DB,}$ = U_{SB} = 0
V_{TH}	0.1	1.0	2.5	V	V_{DS} = V_{GS} = V_{TH}, I_D = 1μA
gfs	8.0	10		ms	V_{DS} = 10V, I_D = 20mA, f = 1KHz
R_{DS}		70	100	Ω	I_{DS} = 0.1mA, V_{GS} = 5.0V
C_{iss}			4.5	pF	V_{DS} = 15V, I_D = 20mA, f = 1MHz
C_{oss}			1.3	pF	V_{DS} = 15V, I_D = 20mA, f = 1MHz
C_{rss}			1.2	pF	V_{DS} = 15V, I_D = 20mA, f = 1MHz

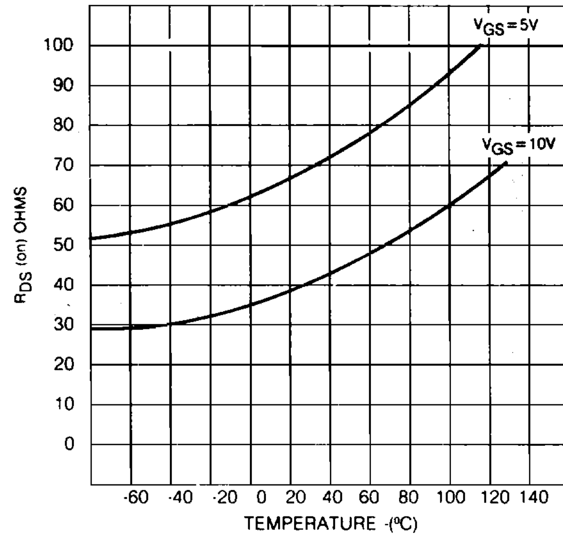
N-CHANNEL ENHANCEMENT MOS FET

CHIP TYPE FMN1.2

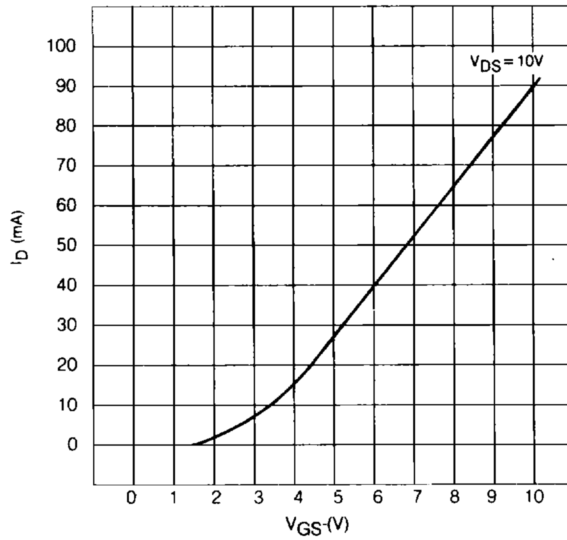
DRAIN CURRENT VS
DRAIN-TO-SOURCE VOLTAGE



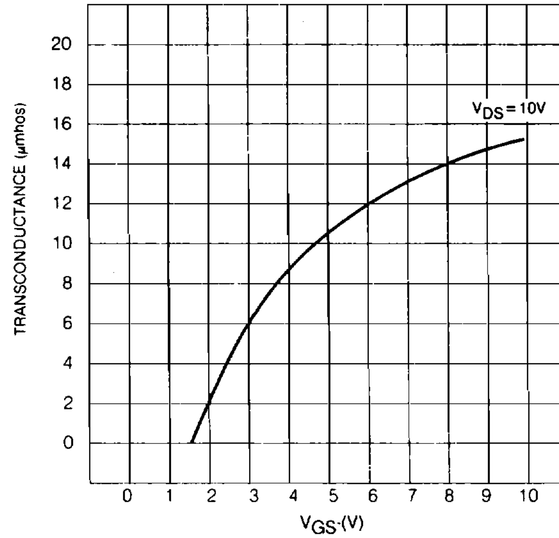
DRAIN-TO-SOURCE RESISTANCE
VS TEMPERATURE



DRAIN CURRENT VS
GATE-TO-SOURCE VOLTAGE



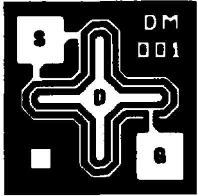
TRANSCONDUCTANCE VS
GATE-TO-SOURCE VOLTAGE



N-CHANNEL ENHANCEMENT DMOS FET

CHIP NUMBER

FMN35.3



Die Size: 20 x 20 (mils)
0.508 x 0.508(mm)
Pad Size: 4 x 4 (mils)
0.102 x 0.102(mm)
BODY-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

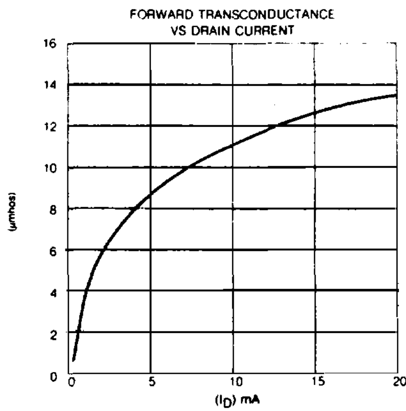
TYPICAL ELECTRICAL CHARACTERISTICS

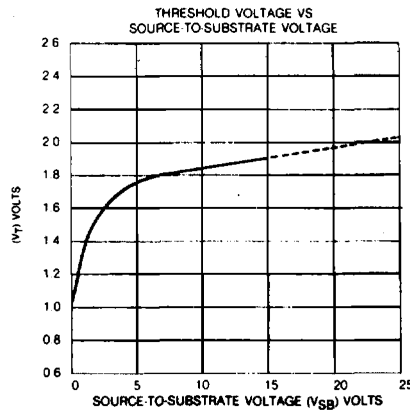
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{DSS}	20	33		V	$I_D = 1.0\mu A$, $V_{GS} = 0$, $V_{BS} = 0$
I_{DSS}		.01	10	nA	$V_{DS} = 10V$, $V_{GS} = 0$, $V_{BS} = 0$
I_{GSS}		1	100	pA	$V_{GB} = \pm 25V$, $V_{DB}, = V_{SB} = 0$
V_{TH}	0.1	1.0	2.5	V	$V_{DS} = V_{GS} = V_{TH}$, $I_D = 1\mu A$
g_{fs}	10	15		ms	$V_{DS} = 10V$, $I_D = 20mA$, $f = 1KHz$
R_{DS}		50	70	Ω	$I_{DS} = 0.1mA$, $V_{GS} = 5.0V$
C_{iss}			3.6	pF	$V_{DS} = 15V$, $I_D = 20mA$, $f = 1MHz$
C_{oss}			1.3	pF	$V_{DS} = 15V$, $I_D = 20mA$, $f = 1MHz$
C_{rss}			0.35	pF	$V_{DS} = 15V$, $I_D = 20mA$, $f = 1MHz$

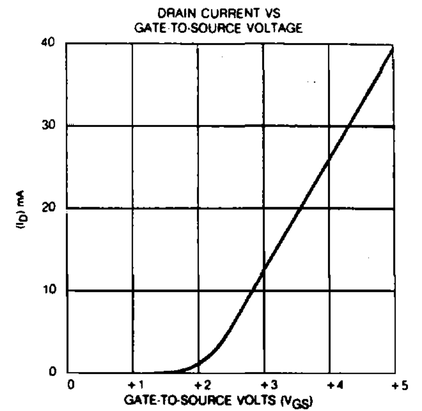
TYPICAL DEVICE TYPES: SDF9210, SDF9212, SDF9214, SDF8200, SDF8202

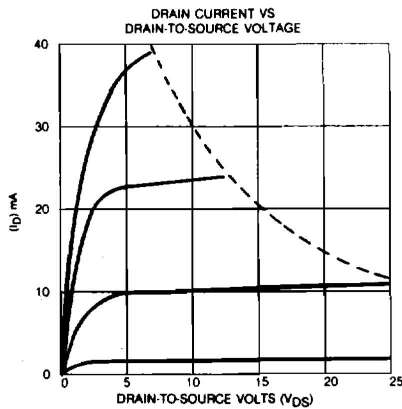
N-CHANNEL ENHANCEMENT DMOS FET

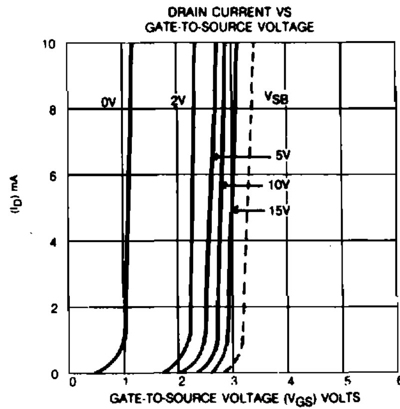
CHIP TYPE FMN35.3, FMNZ35.3

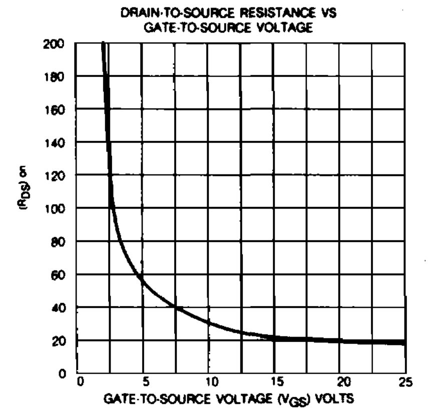


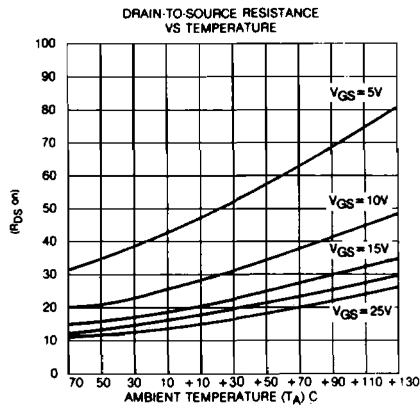


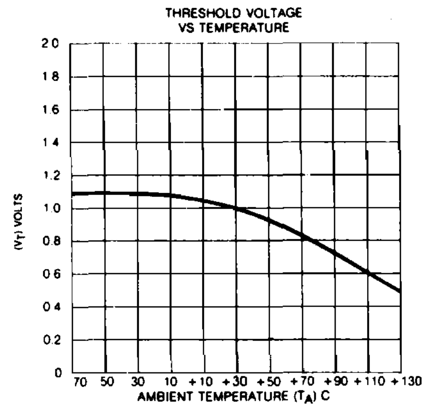








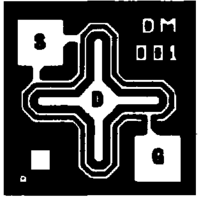




N-CHANNEL ENHANCEMENT DMOS FET

CHIP NUMBER

FMNZ35.3



.020" (0.508mm)

.020" (0.508mm)

Die Size: 20 x 20 (mils)
0.508 x 0.508(mm)
4 x 4 (mils)
Pad Size: 0.102 x 0.102(mm)
BODY-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

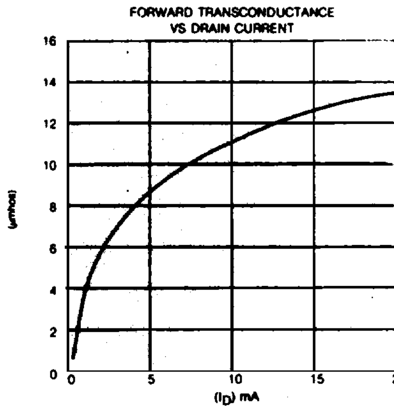
TYPICAL ELECTRICAL CHARACTERISTICS

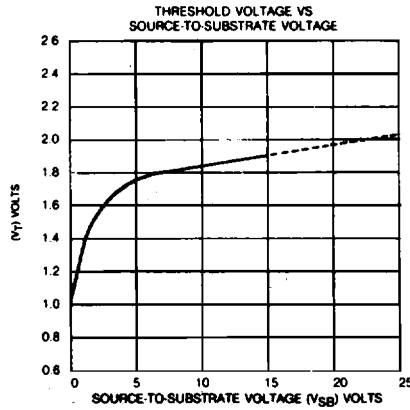
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{DSS}	20	33		V	I_D = 1.0μA, V_{GS} = 0, V_{BS} = 0
I_{DSS}		0.01	10	nA	V_{DS} = 10V, V_{GS} = 0, V_{BS} = 0
I_{GSS}		0.01	1	nA	V_{GS} = 10V, V_{BS} = V_{BD} = 0
V_{TH}	0.1	1.0	2.5	V	V_{DS} = V_{GS} = V_{TH}, I_D = 1μA
g_{fs}	10	15		mmho	V_{DS} = 10V, I_D = 20mA, f = 1KHz
R_{DS}		50	70	Ω	I_{DS} = 0.1mA, V_{GS} = 5.0V
C_{iss}			3.6	pF	V_{DS} = 15V, I_D = 20mA, f = 1MHz
C_{oss}			1.3	pF	V_{DS} = 15V, I_D = 20mA, f = 1MHz
C_{rss}			0.35	pF	V_{DS} = 15V, I_D = 20mA, f = 1MHz

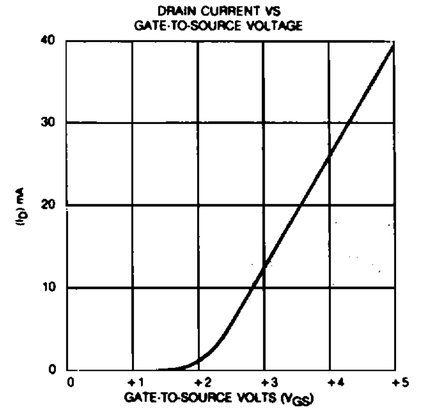
TYPICAL DEVICE TYPES: SDF9210, SDF9212, SDF9214, SDF8200, SDF8202

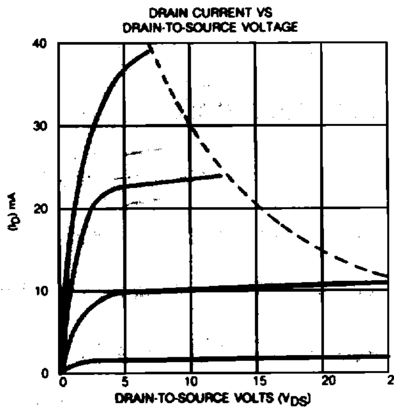
N-CHANNEL ENHANCEMENT DMOS FET

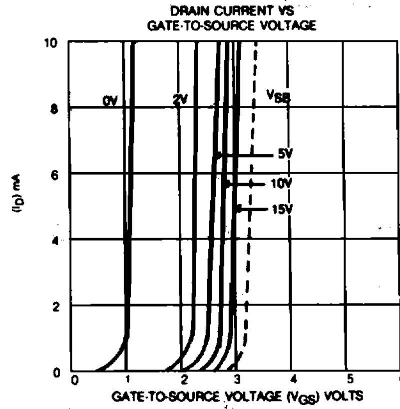
CHIP TYPE FMNZ35.3, FMN35.3

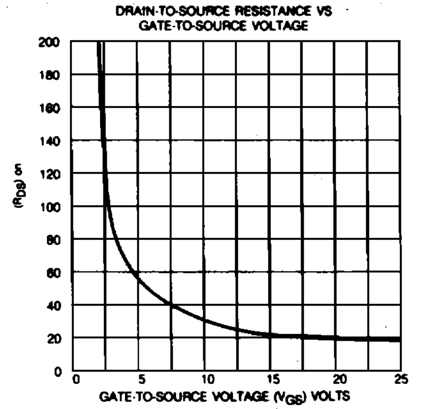


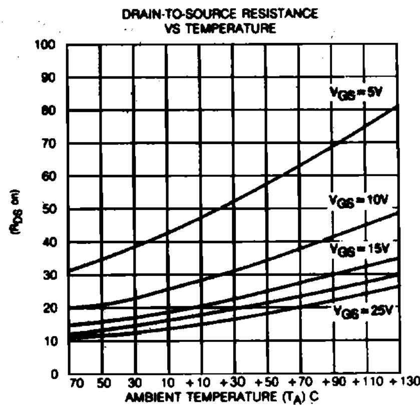


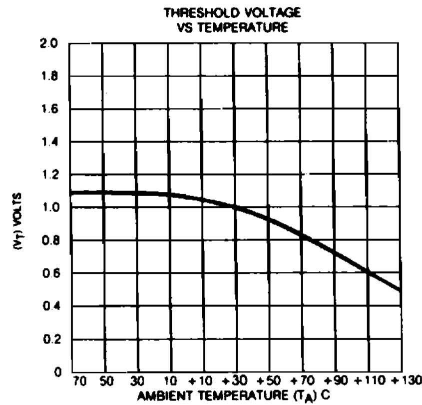








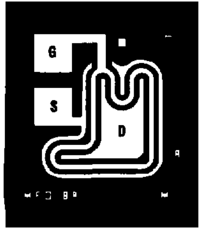




P-CHANNEL ENHANCEMENT MOS FET

CHIP NUMBER

FMP1.1



.023" (0.584mm)

.021" (0.533mm)

Die Size:	21 x 23 (mils)
	0.533 x 0.584(mm)
Pad Size:	4 x 4 (mils)

BODY-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

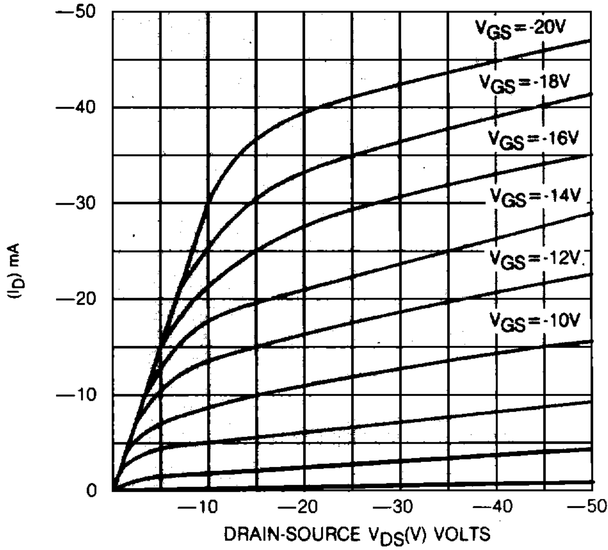
TYPICAL ELECTRICAL CHARACTERISTICS

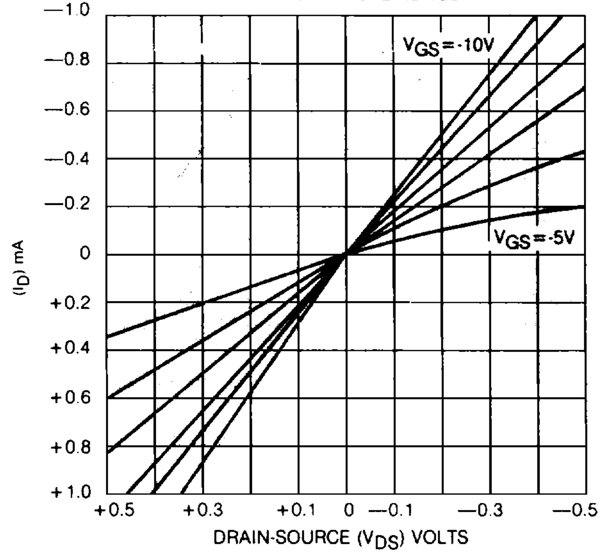
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	-35	-40	-60	V	I_D = 10, µA, V_{GS} = 0, V_{BS} = 0
I_{DSS}		20	500	pA	V_{DS} = -15V, V_{GS} = 0, V_{BS} = 0
g_{fs}	1000	2500	4000	µmho	V_{DS} = -15V, I_D, = 10mA, f = 1KHz
$I_{D(on)}$	-3.0		-30	mA	V_{DS} = -15V, V_{GS} = -10V, V_{GS} = 0
r_{DS}		200	350	Ω	V_{GS} = -20V, I_D = -100µA, V_{BS} = 0
$V_{GS(th)}$	-2.0		-5.0	V	V_{DS} = -15V, I_D = -10µA, V_{BS} = 0
C_{rss}			1.0	pF	V_{DS} = -15V, I_D = -10mA, f = 1MHz
C_{iss}			3.5	pF	V_{DS} = -15V, I_D = -10mA, f = 1MHz
$\bar{e}_n$		50		nV/√Hz	V_{DS} = -15V, I_D = -10mA, f = 1KHz

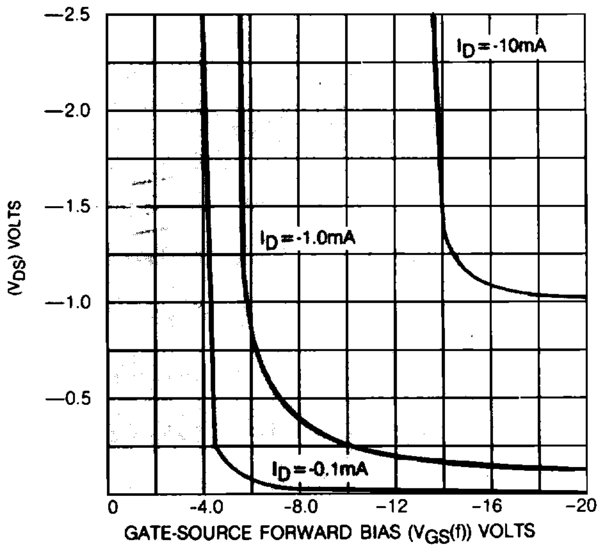
TYPICAL DEVICE TYPES: 2N4065, 3N163, 3N164, UC1700, UC1702

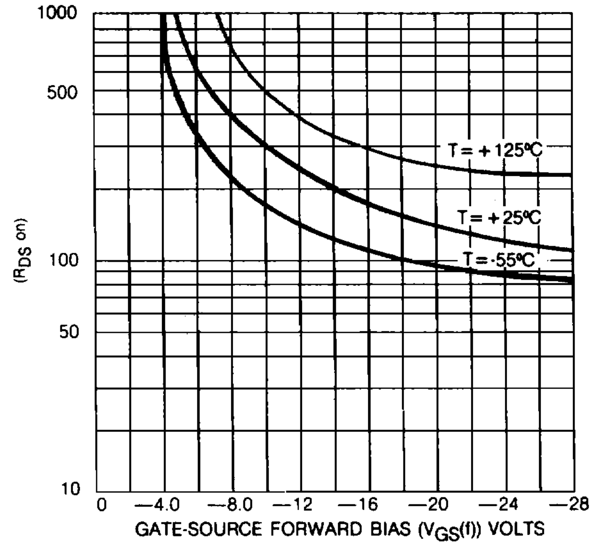
P-CHANNEL ENHANCEMENT MOS FET

CHIP TYPE FMP1.1









P-CHANNEL ENHANCEMENT MOS FET

CHIP NUMBER

FMPZ1.1

.023" (0.584mm)

.021" (0.533mm)

Die Size: 21 x 23 (mils)
0.533 x 0.584(mm)
Pad Size: 4 x 4 (mils)
0.102 x 0.102(mm)
BODY-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

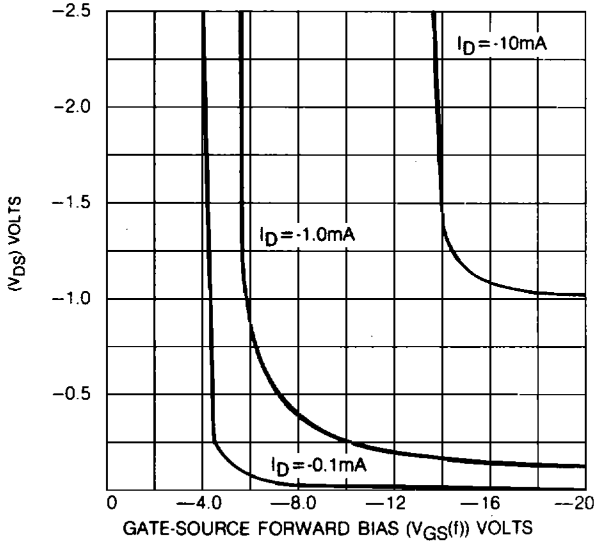
TYPICAL ELECTRICAL CHARACTERISTICS

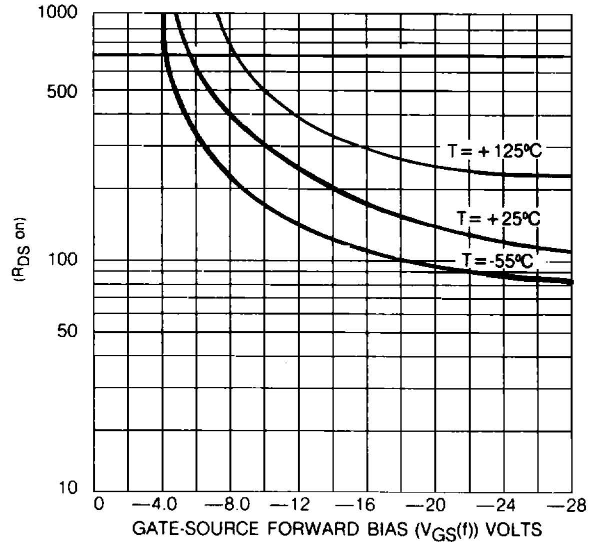
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VDSS}	-35	-40	-60	V	I_D = -10, μA, V_{GS} = 0, V_{BS} = 0
I_{DSS}		20	500	pA	V_{DS} = -15V, V_{GS} = 0, V_{BS} = 0
g_{fs}	1000	2500	4000	μmho	V_{DS} = -15V, I_D, = -10mA, f = 1KHz
$I_D(on)$	-3.0		-30	mA	V_{DS} = -15V, V_{GS} = -10V, V_{BS} = 0
r_{DS}		200	350	Ω	V_{GS} = -20V, I_D = -100μA, V_{BS} = 0
$V_{GS(th)}$	-2.0		-5.0	V	V_{DS} = -15V, I_D = -10μA, V_{BS} = 0
C_{rss}			1.0	pF	V_{DS} = -15V, I_D = -10mA, f = 1MHz
C_{iss}			3.5	pF	V_{DS} = -15V, I_D = -10mA, f = 1MHz
$\bar{e}_n$		50		nV/√Hz	V_{DS} = -15V, I_D = -10mA, f = 1KHz

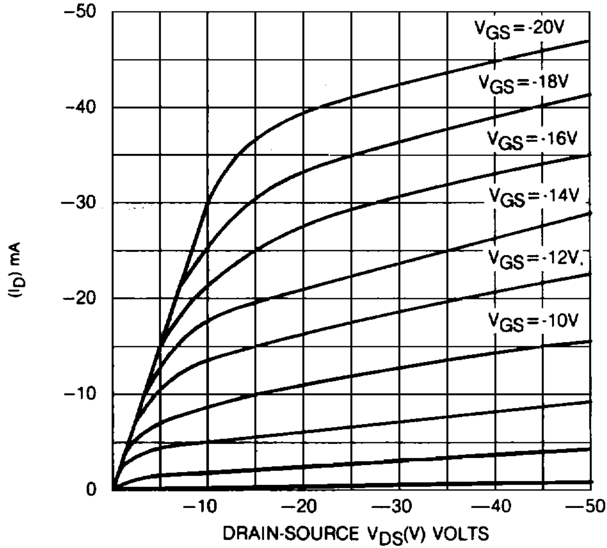
TYPICAL DEVICE TYPES: 3N172, 3N173

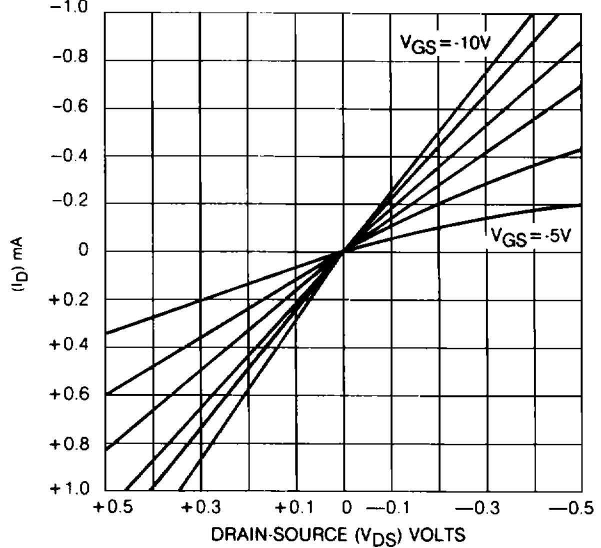
P-CHANNEL ENHANCEMENT MOS FET

CHIP TYPE FMPZ1.1





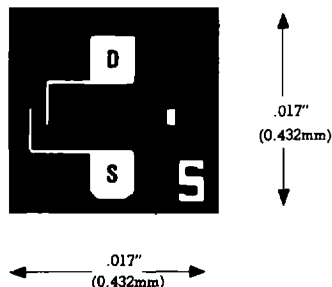




N-CHANNEL JUNCTION FET

CHIP NUMBER

FN2.2



.017" (0.432mm)

.017" (0.432mm)

Die Size: .17 x 17 (mils)
0.432 x 0.432(mm)
3.5 x 4 (mils)
Pad Size: 0.089 x 0.102(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

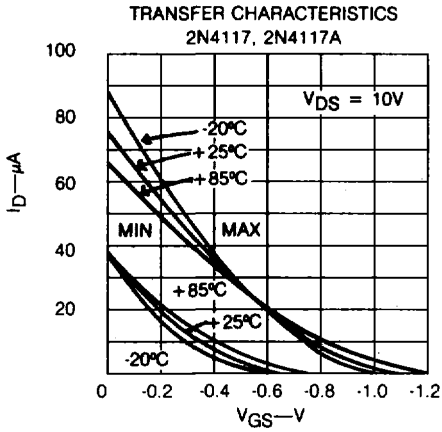
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

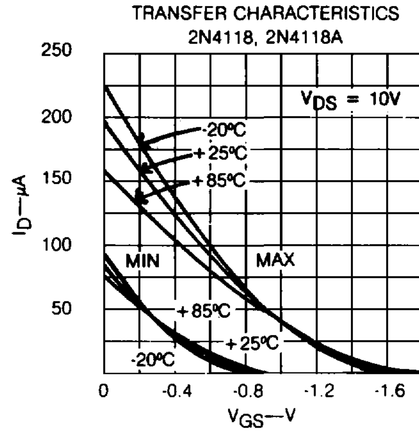
TYPICAL ELECTRICAL CHARACTERISTICS

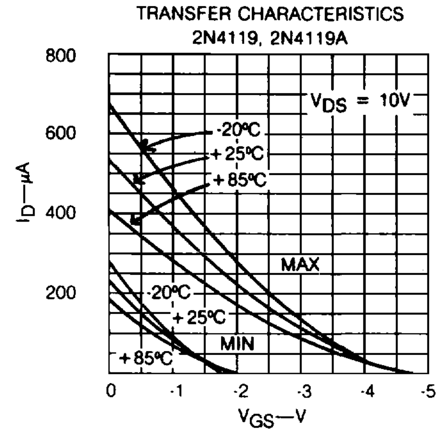
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	-30	-60	-80	V	V_{DS} = 0V, I_G = 1μA
I_{DSS}	0.02	0.25	1.0	mA	V_{DS} = 10V, V_{GS} = 0
g_{fs}	80	250	350	μmho	V_{DS} = 10V, V_{GS}, = 0
I_{GSS}		-0.3	-10	pA	V_{GS} =-20V, V_{DS} = 0
$V_{GS(off)}$	-0.5	-2.0	-6.0	V	V_{DS} = 10V, I_D = 1nA
C_{rss}	.7	0.8	1.0	pF	V_{DS} = 15V, V_{GS} = 0, f = 1MHz
C_{iss}	1.7	2.0	2.5	pF	V_{DS} = 15V, V_{GS} = 0, f = 1MHz
$\bar{e}_n$		45	150	nV/√Hz	V_{DG} = 10V, I_D = 50μA, f = 100Hz

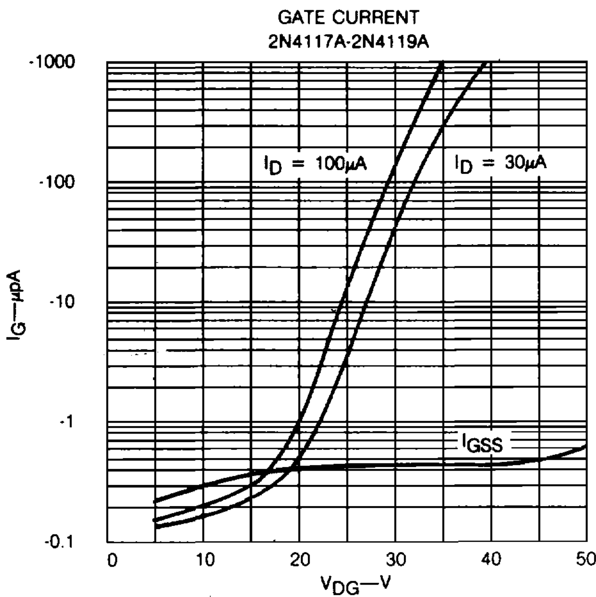
TYPICAL DEVICE TYPES: 2N4117A, 2N4119A, 2N3452, 2N5902-2N5909

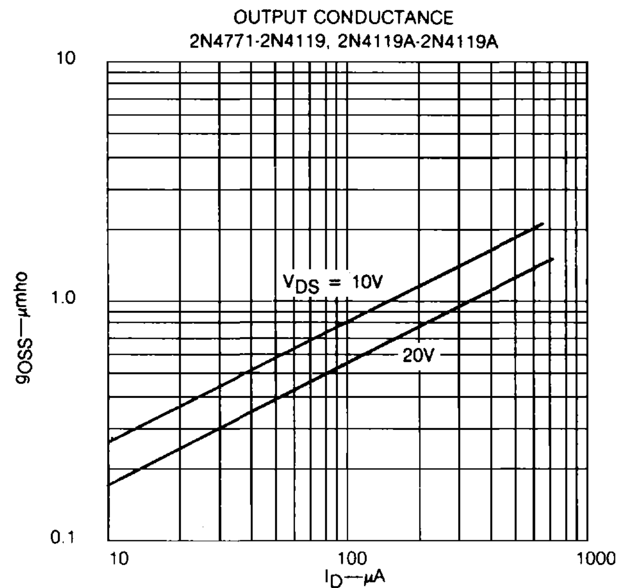
CHIP TYPE FN2.2

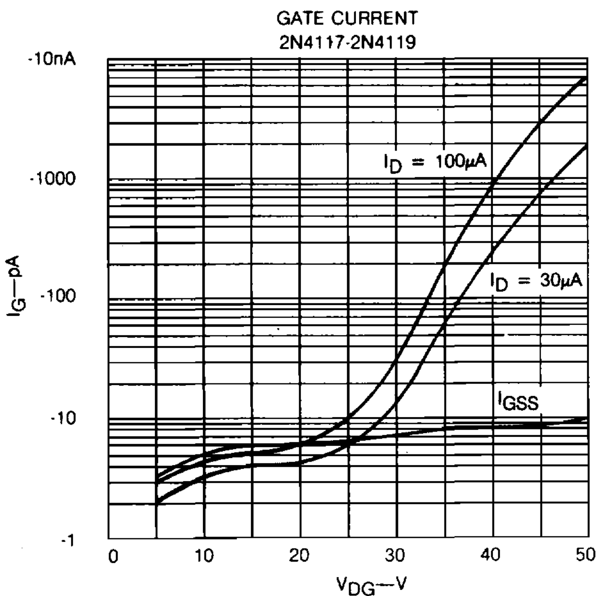


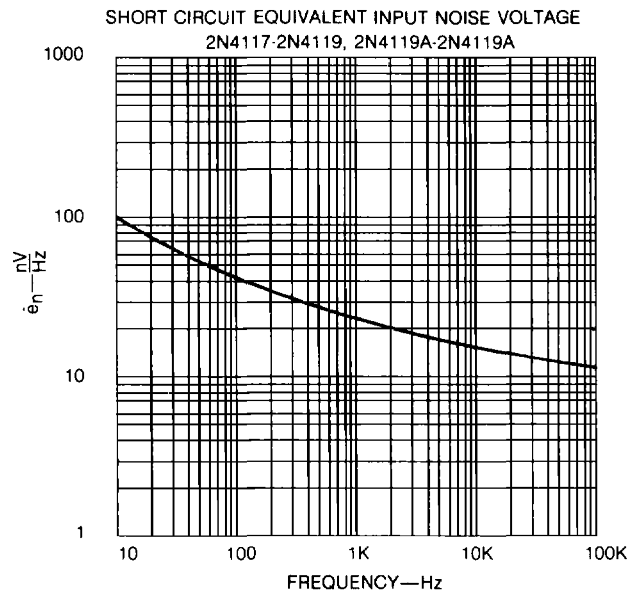








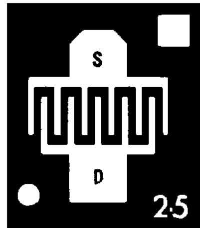




N-CHANNEL JUNCTION FET

CHIP NUMBER

FN2.5



.013" (0.737mm)

.012" (0.305mm)

Die Size: 12 x 13 (mils) 0.305 x .0330(mm)

Pad Size: 3 x 3 (mils) 0.076 x 0.076(mm)

GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

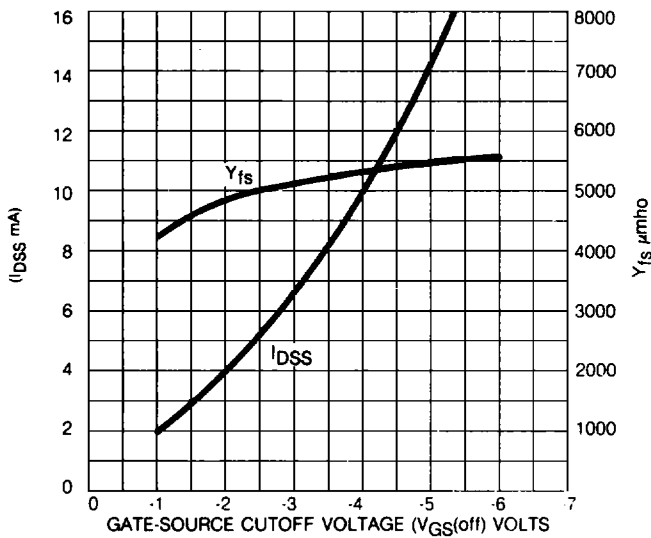
TYPICAL ELECTRICAL CHARACTERISTICS

PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	-25	-35	-50	V	V_{DS} = 0V, I_G = 1μA
I_{DSS}	1.0	10	30	mA	V_{DS} = 15V, V_{GS} = 0
g_{fs}	3.0	5.5	7.5	mmho	V_{DS} = 15V, V_{GS}, = 0
I_{GSS}		-5.0	-100	pA	V_{GS} =-20V, V_{DS} = 0
rDS	100	170	500	Ω	V_{DS} = 100mV, V_{GS} = 0
$V_{GS(off)}$	-0.8	-3.0	8.0	V	V_{DS} = 15V, I_D = 1nA
C_{rss}	0.6	0.7	0.9	pF	V_{DS} = 15V, V_{GS} = 0, f = 1MHz
C_{iss}	3.0	3.5	4.0	pF	V_{DS} = 15V, V_{GS} = 0, f = 1MHz
$\bar{e}_n$		15		nV/√Hz	V_{DG} = 15V, I_D = 5.A, f = 100Hz

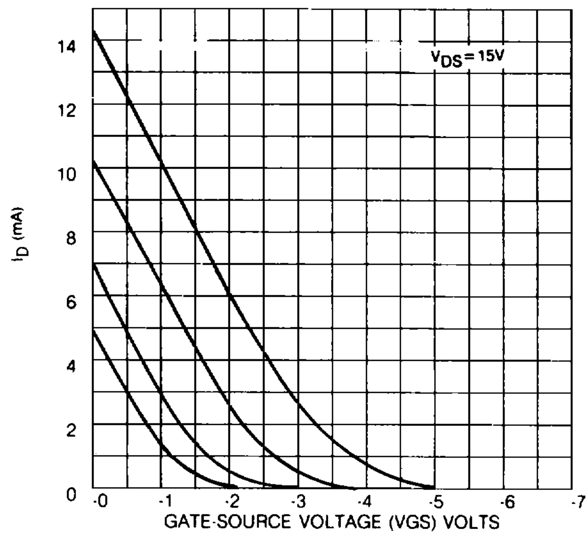
TYPICAL DEVICE TYPES: 2N4116, 2N3823, 2N3452, 2N5104, 2N5105, UC734, 2N5485

CHIP TYPE FN2.5

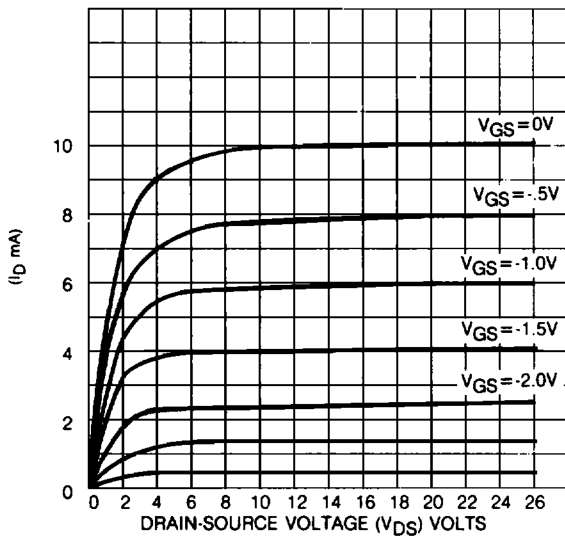
TRANSFER ADMITTANCE VS GATE-SOURCE CUTOFF VOLTAGE



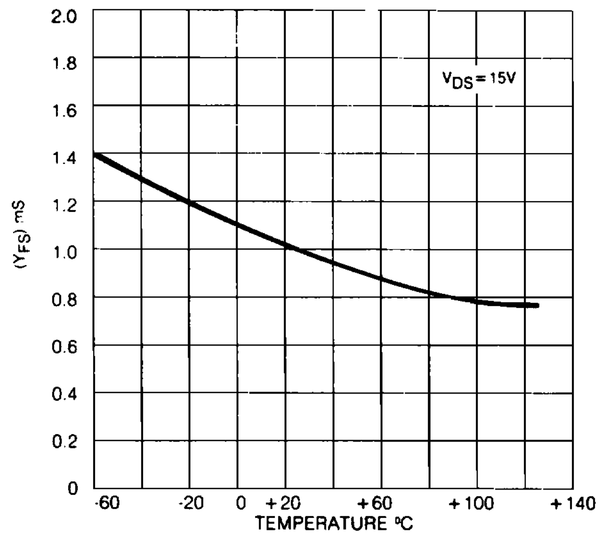
TRANSFER CHARACTERISTICS



OUTPUT CHARACTERISTICS



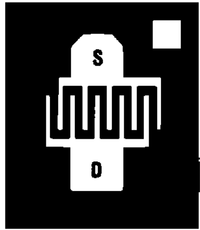
NORMALIZED FORWARD TRANSFER ADMITTANCE VS TEMPERATURE



N-CHANNEL JUNCTION FET

CHIP NUMBER

FN3.6



Die Size: .16 x 17 (mils)
0.406 x 0.432(mm)
Pad Size: 3 x 3 (mils)
0.076 x 0.076(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

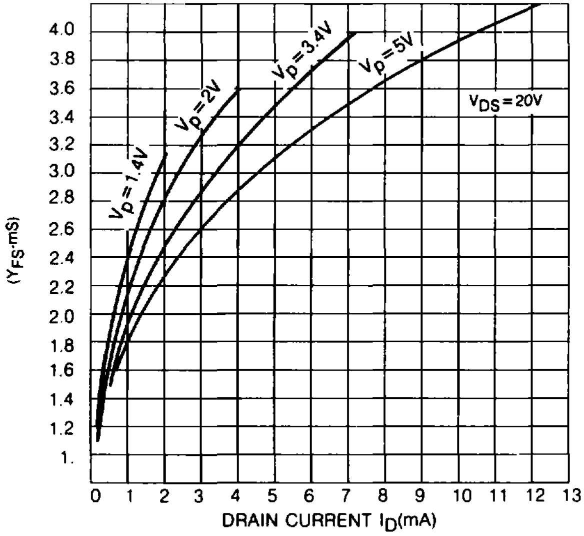
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

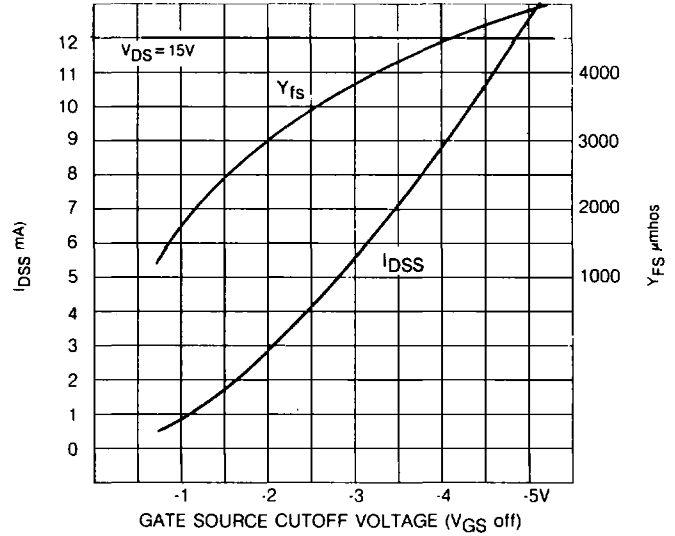
TYPICAL ELECTRICAL CHARACTERISTICS

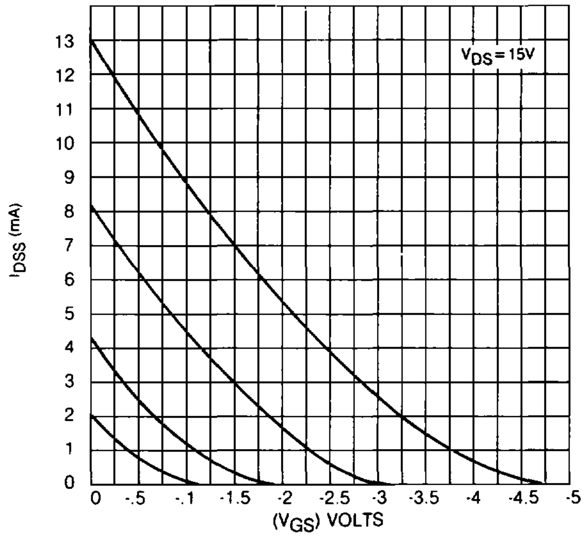
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	-30	-50	-70	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	0.5	8.0	20	mA	V_{DS} = 15V, V_{GS} = 0
g_{fs}	1.5	4.0	6.0	mmho	V_{DS} = 15V, $V_{GS,}$ = 0
I_{GSS}		25	100	pA	V_{GS} =-30V, V_{DS} = 0
r_{DS}	150	200	600	Ω	V_{DS} = 100mV, V_{GS} = 0
$V_{GS(off)}$	-1.0	-3.0	8.0	V	V_{DS} = 15V, I_D = 1nA
C_{rss}	1.2	2.0	3.0	pF	V_{DS} = 15V, V_{GS} = 0, f = 1MHz
C_{iss}		4.5	6.0	pF	V_{DS} = 15V, V_{GS} = 0, f = 1MHz

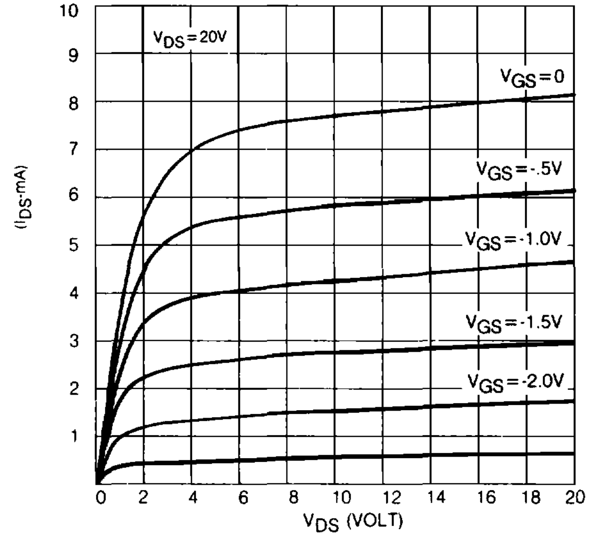
TYPICAL DEVICE TYPES: 2N3821 - 2N3824, 2N3921 - 2N3922, 2N5545 - 2N5547

CHIP TYPE FN3.6





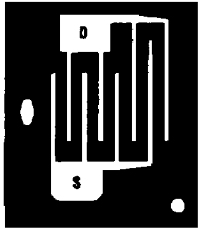




N-CHANNEL JUNCTION FET

CHIP NUMBER

FN5.5



.020" (0.508mm)

.015" (0.381mm)

Die Size: 15 x 20 (mils) 0.381 x .0.508(mm)
Pad Size: 3 x 4 (mils) 0.076 x 0.102(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

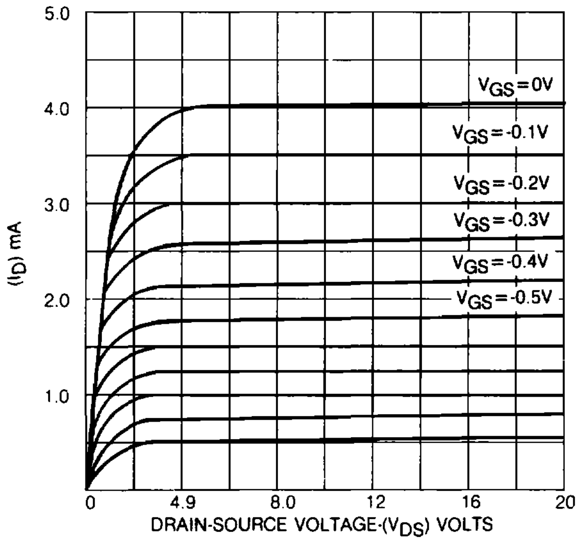
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

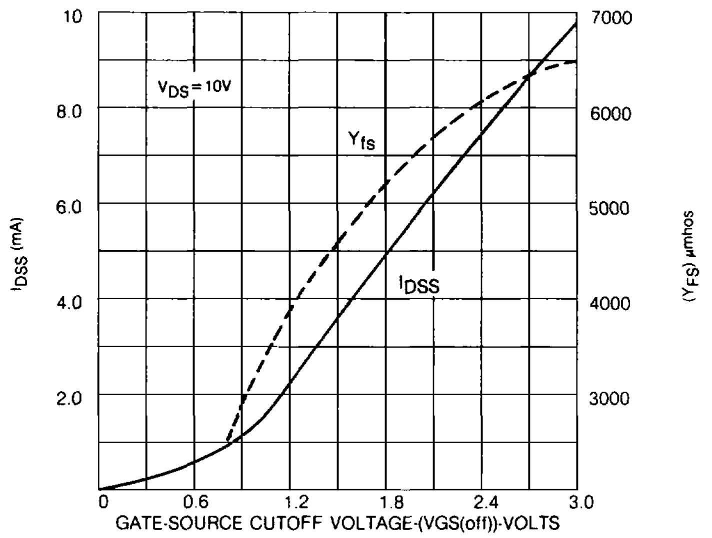
TYPICAL ELECTRICAL CHARACTERISTICS

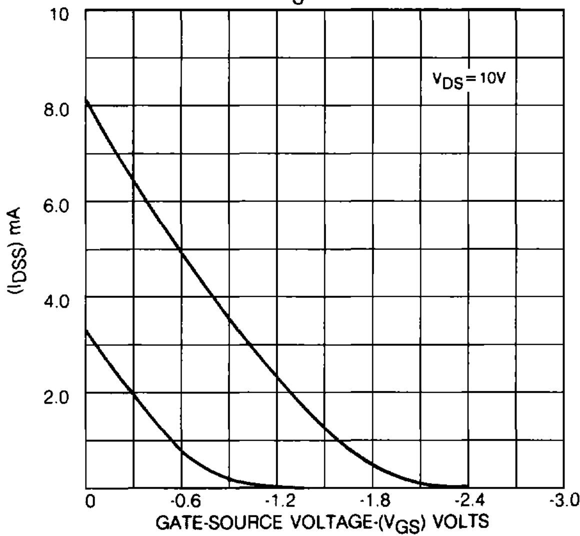
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	-40	-60	-80	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	1.0	12	30	mA	V_{DS} = 20V, V_{GS} = 0
g_{fs}	1.0	4.0	6.0	mmho	V_{DS} = 20V, $V_{GS,}$ = 0
I_{GSS}		-10	-100	pA	V_{GS} =-30V, V_{DS} = 0
rDS	120	300	1000	Ω	V_{DS} = 100mV, V_{GS} = 0
$V_{GS(off)}$	-0.5	-3.0	-8.0	V	V_{DS} = 20V, I_D = 1nA
C_{rss}		1.8	3.0	pF	V_{DS} = 15V, I_D = 2mA, f = 1MHz
C_{iss}		6	8	pF	V_{DS} = 15V, I_D = 2mA, f = 1MHz
$\bar{e}_n$		25	50	nV/√Hz	V_{DS} = 15V, I_D = 2mA, f = 10Hz

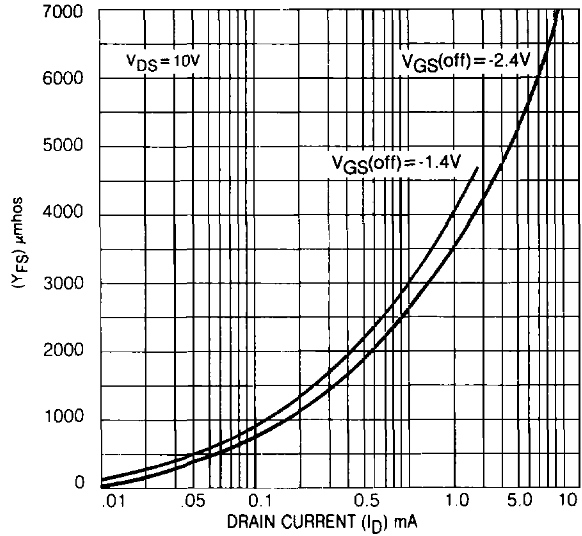
TYPICAL DEVICE TYPES: 2N5561 - 2N5563, UC210, UC220, 2N4221, 2N4222

CHIP TYPE FN5.5





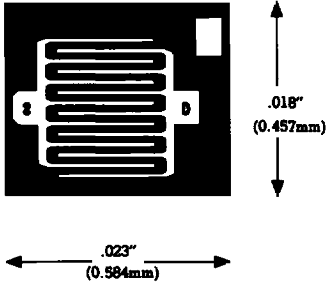




N-CHANNEL JUNCTION FET

CHIP NUMBER

FN7.1



Die Size: 18 x 23 (mils)
0.457 x .0.584(mm)
Pad Size: 3 x 3 (mils)
0.076 x 0.076(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

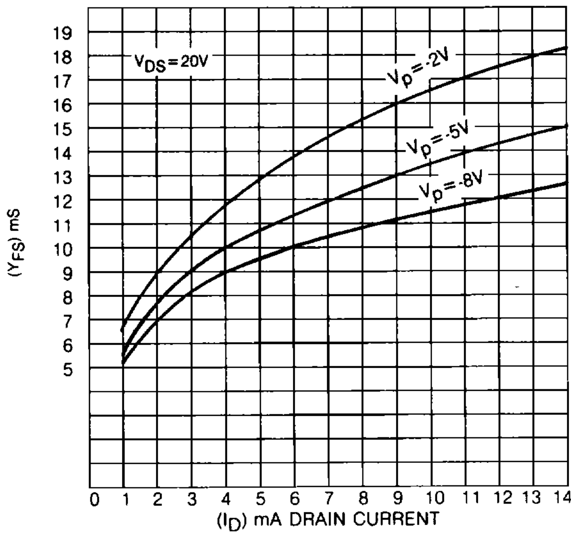
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

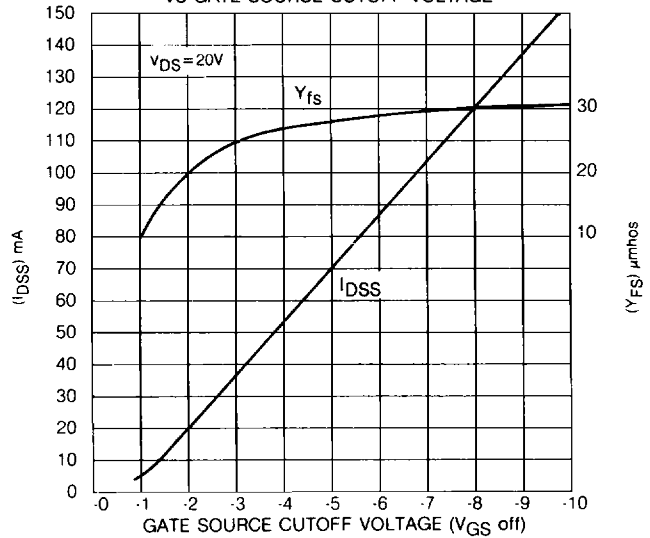
TYPICAL ELECTRICAL CHARACTERISTICS

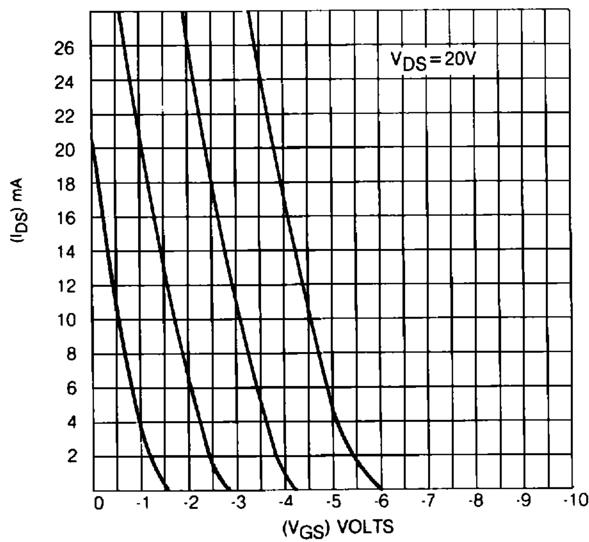
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	-30	-50	-70	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	5.0	60	150	mA	V_{DS} = 20V, V_{GS} = 0
g_{fs}		8		mmho	V_{DS} = 20V, I_D, = 2mA
I_{GSS}		-20	-200	pA	V_{GS} =-20V, V_{DS} = 0
r_{DS}	20	40	100	Ω	V_{DS} = 100mV, V_{GS} = 0
$V_{GS(off)}$	-0.5	-4.5	-10	V	V_{DS} = 20V, I_D = 1nA
C_{rss}	3.0	3.5	4.0	pF	V_{DS} = 15V, I_D = 5mA, f = 1MHz
C_{iss}	10	12	16	pF	V_{DS} = 15V, I_D = 5mA, f = 1MHz
$\bar{e}_n$		7		nV/√Hz	V_{DS} = 15V, I_D = 5mA, f = 1KHz

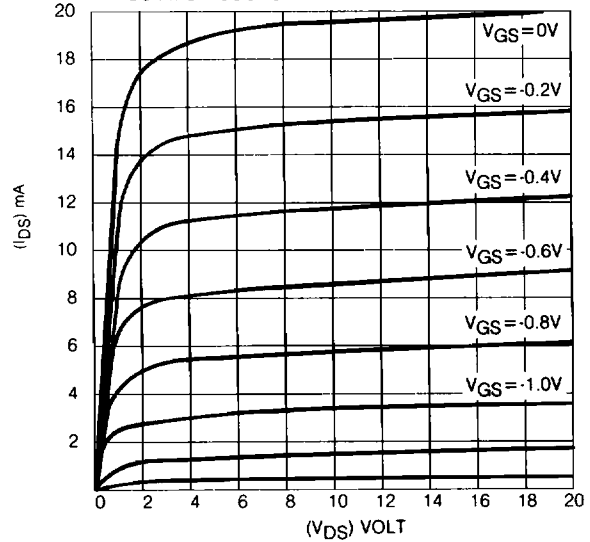
TYPICAL DEVICE TYPES: 2N4091 - 2N4093, 2N4391 - 2N4393, 2N4856 - 2N4861, KK4391 - KK4393

CHIP TYPE FN7.1







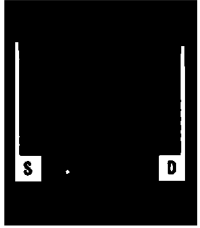


PRODUCT CATALOG

N-CHANNEL JUNCTION FET

CHIP NUMBER

FN9



.030" (0.762mm)

.027" (0.686mm)

Die Size: 27 x 30 (mils)
0.686 x .0.762(mm)
Pad Size: 4 x 4 (mils)
0.102 x 0.102(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

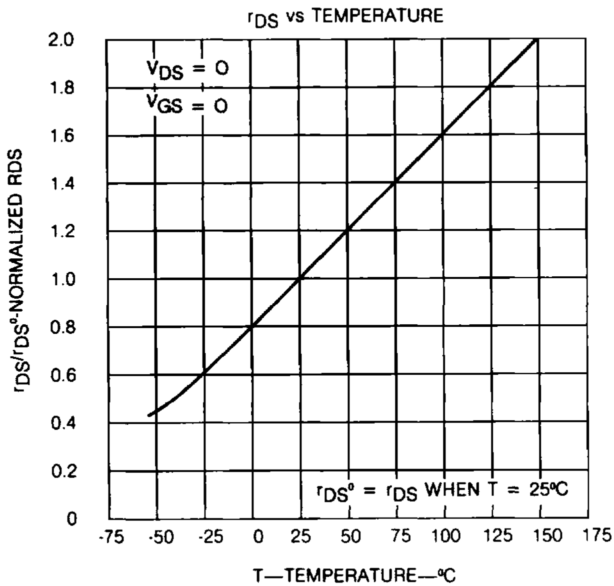
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

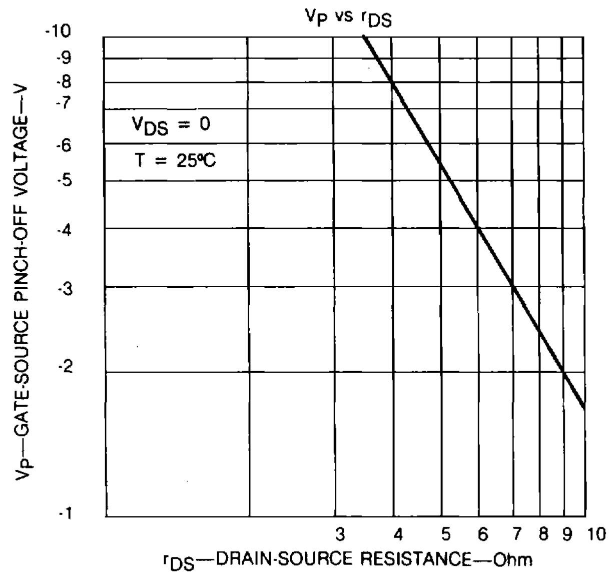
TYPICAL ELECTRICAL CHARACTERISTICS

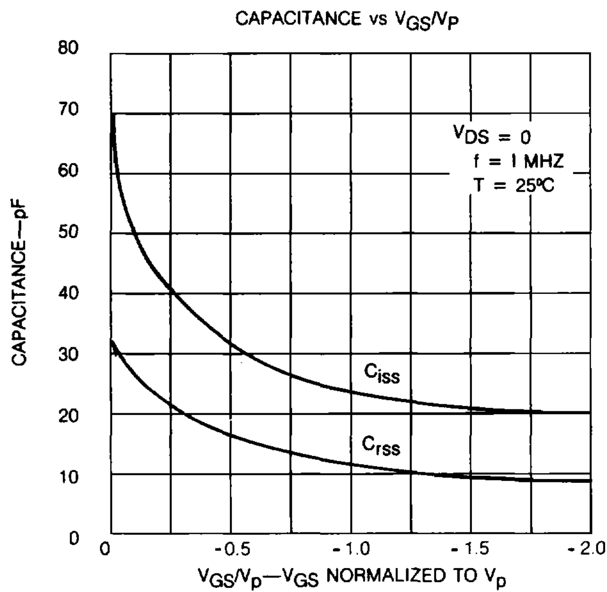
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	-25	-30	-45	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	100	400	700	mA	V_{DS} = 5V, V_{GS} = 0 (pulse test)
g_{fs}		10		mmho	V_{DG} = 10V, I_D, = 2mA
I_{GSS}		-50	-500	pA	V_{GS} =-15V, V_{DS} = 0
r_{DS}	4.5	6.0	20	Ω	V_{DS} = 100mV, V_{GS} = 0
$V_{GS(off)}$	-0.5	5.0	12.0	V	V_{DS} = 5V, I_D = 3nA
C_{rss}		12	20	pF	V_{DG} = 10V, V_{DG} = 0, f = 1MHz
C_{iss}		25	35	pF	V_{SG} = 10V, V_{DS} = 0, f = 1MHz
$\bar{e}_n$		5.0		nV/√Hz	V_{DG} = 15V, I_D = 2mA, f = 10Hz

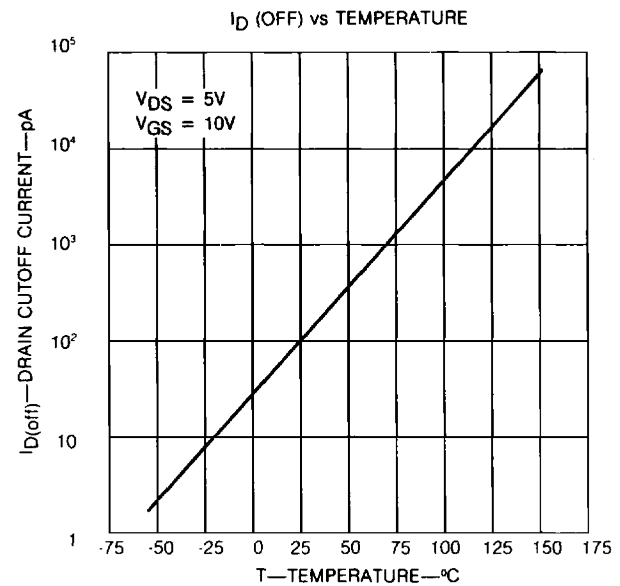
TYPICAL DEVICE TYPES: 2N5432 - 2N5434, SDF1000 series

CHIP TYPE FN9





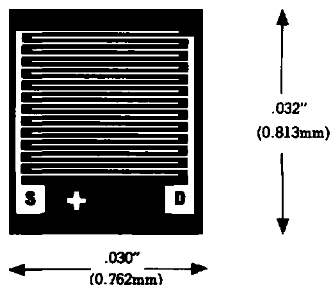




N-CHANNEL JUNCTION FET

CHIP NUMBER

FN9.1



Die Size: 30 x 32 (mils)
0.762 x .0.813(mm)
.762 x .813(mils)
Pad Size: 0.102 x 0.102(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

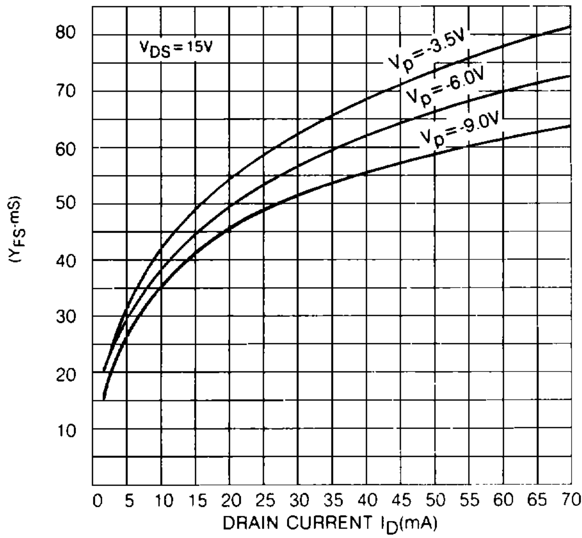
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

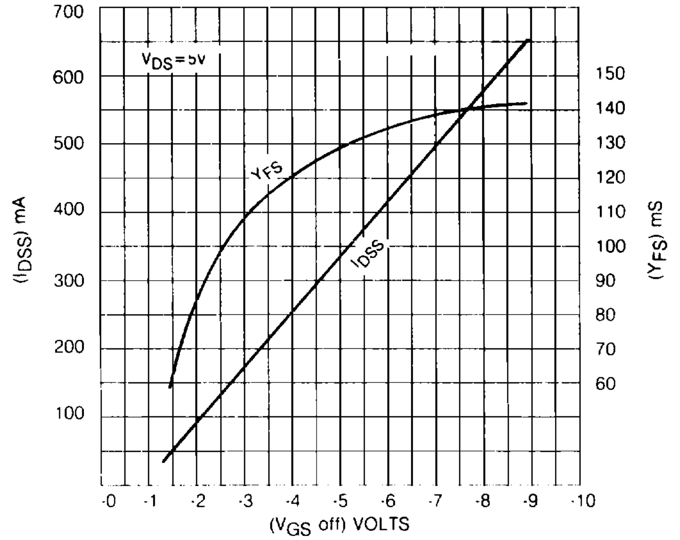
TYPICAL ELECTRICAL CHARACTERISTICS

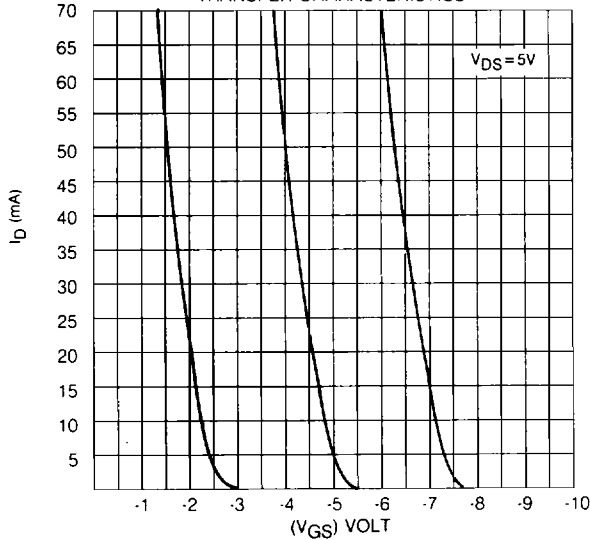
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	- 25	-40	- 50	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	30		1000	mA	V_{DS} = 15V, V_{GS} = 0
V_p	-1.0		-10	V	V_{DS} = 5V, I_D, = 1nA
R_{on}	3.5		15	OHms	V_{GS} = 0, I_D = 10mA
I_{GSS}		30	200	pA	V_{DS} = 0, V_{GS} = -15V
C_{iss}		28	50	pF	V_{DS} = 0, V_{GS} = -10V, f = 1mHz
C_{rss}		14	25	pF	V_{DS} = 0, V_{GD} = 10V, f = 1MHz
g_{fs}	75	120	250	ms	V_{DS} = 15V, V_{GS} = 0, f = 1KHz

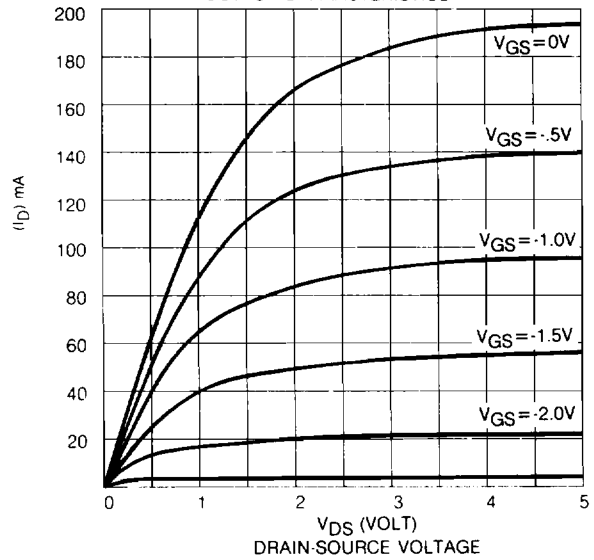
TYPICAL DEVICE TYPES: 2N5432 - 2N5434, series

CHIP TYPE FN9.1





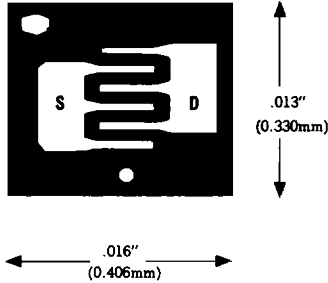




N-CHANNEL JUNCTION FET

CHIP NUMBER

FN22.2



Die Size: 13 x 16 (mils)
0.330 x 0.406(mm)
Pad Size: 4 x 6 (mils)
0.102 x 0.152(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

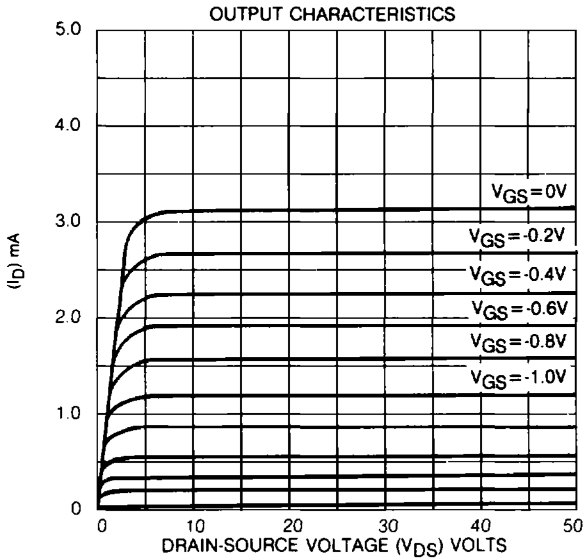
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

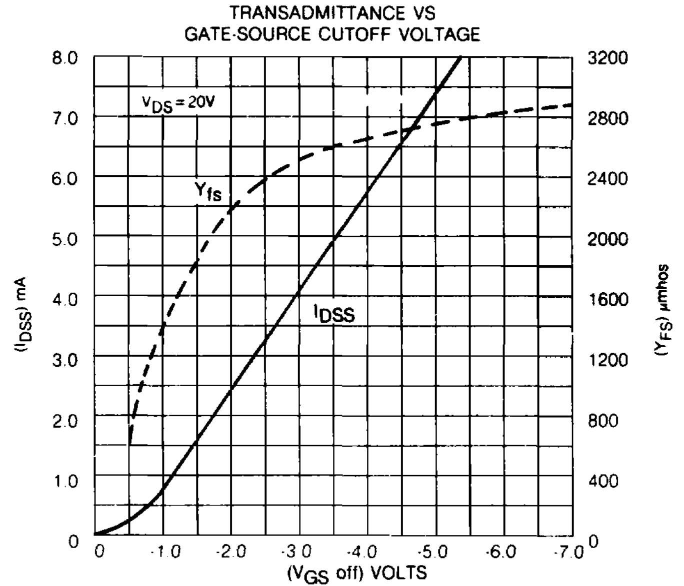
TYPICAL ELECTRICAL CHARACTERISTICS

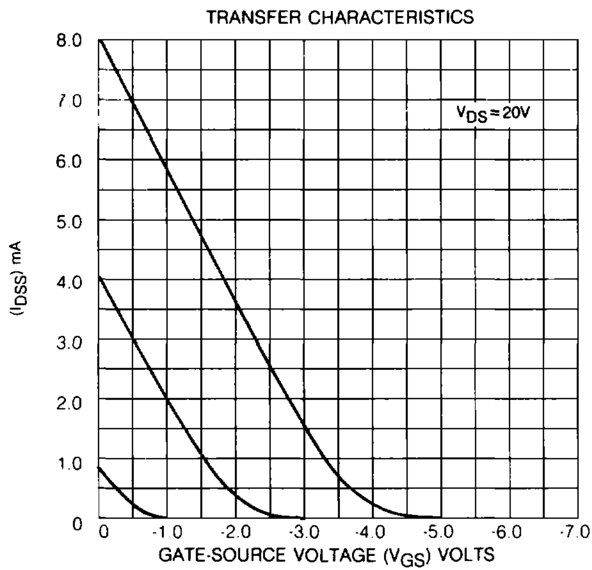
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	-40	-60	-80	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	0.1	3.0	10.0	mA	V_{DS} = 20V, V_{GS} = 0
g_{fs}	0.5	1.7	3.0	mmho	V_{DS} = 20V, $V_{GS,}$ = 0
I_{GSS}		-10	-100	pA	V_{GS} =-30V, V_{DS} = 0
r_{DS}	300	500	2000	Ω	V_{DS} = 100mV, V_{GS} = 0
$V_{GS(off)}$	-0.5	-2.5	-6.0	V	V_{DS} = 20V, I_D = 1nA
C_{rss}	0.8	1.2	1.8	pF	V_{DS} = 20V, V_{GS} = 01, f = 1MHz
C_{iss}	3.0	4.0	5.0	pF	V_{DS} = 20V, V_{GS} = 0, f =1MHz
$\bar{e}_n$		30	50	nV/√Hz	V_{DS} = 20V, V_{GS} = 0, f = 100Hz

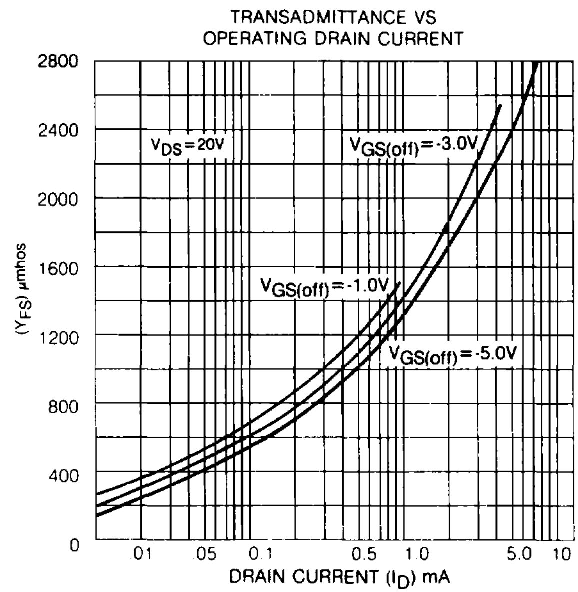
TYPICAL DEVICE TYPES: 2N3684A, 2N4338, 2N4341, 2N4302 - 2N4304

CHIP TYPE FN22.2





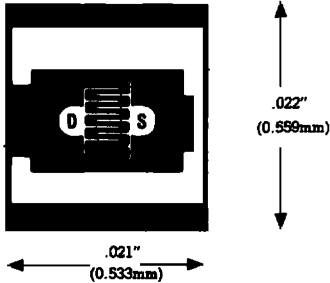




N-CHANNEL JUNCTION FET

CHIP NUMBER

FN36.1



Die Size: 21 x 22 (mils)
0.533 x 0.559(mm)
Pad Size: 3 x 3 (mils)
0.076 x 0.076(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000
Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

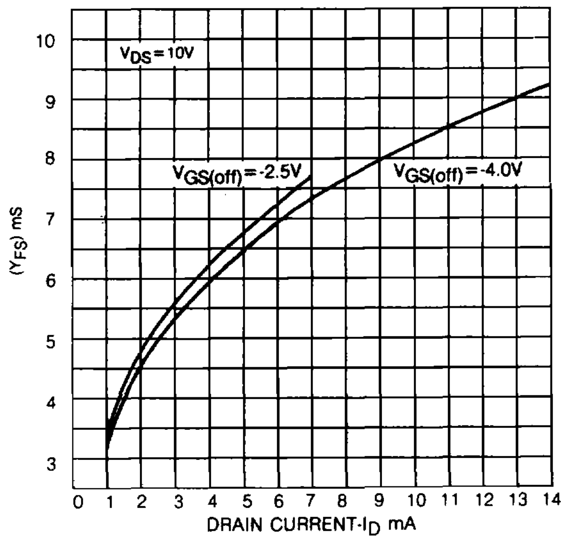
TYPICAL ELECTRICAL CHARACTERISTICS

PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	-20	-30	-40	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	5.0	15	40	mA	V_{DS} = 15V, V_{GS} = 0
g_{fs}	4500	8000	12000	μmho	V_{DS} = 15V, $V_{GS,}$ = 0
I_{GSS}		-10	-100	pA	V_{GS} = -15V, V_{DS} = 0
r_{DS}		100		Ω	V_{DS} = 100mV, V_{GS} = 0
$V_{GS(off)}$	.5	-3.0	-8.0	V	V_{DS} = 15V, I_D = 1nA
C_{rss}		1.0	1.5	pF	V_{DG} = 10V, I_D = 10mA, f = 1MHz
C_{iss}		4.0	6.0	pF	V_{DG} = 10V, I_D = 10mA, f = 1MHz

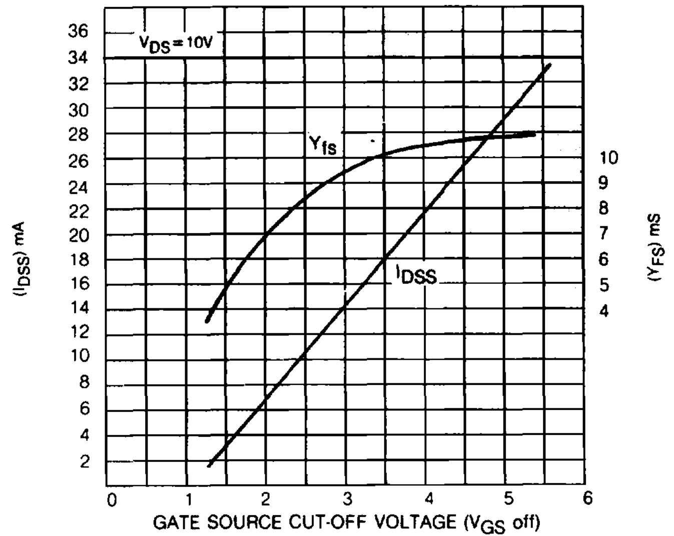
TYPICAL DEVICE TYPES: 2N5397, 2N5398, U257, 2N5911, 2N5912

CHIP TYPE FN36.1

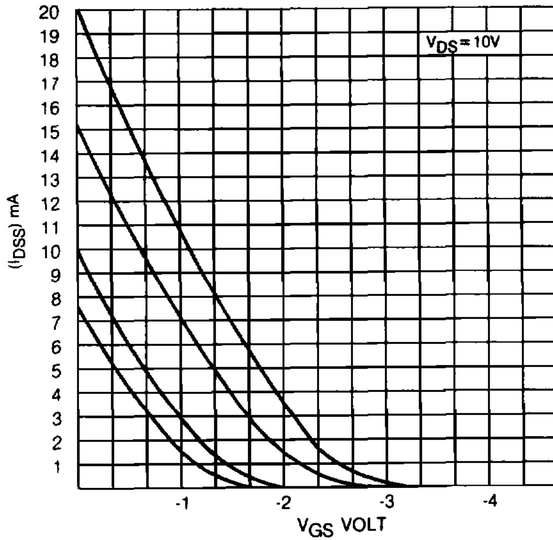
COMMON SOURCE, SHORT CIRCUIT FORWARD TRANSADMITTANCE VS OPERATING DRAIN CURRENT



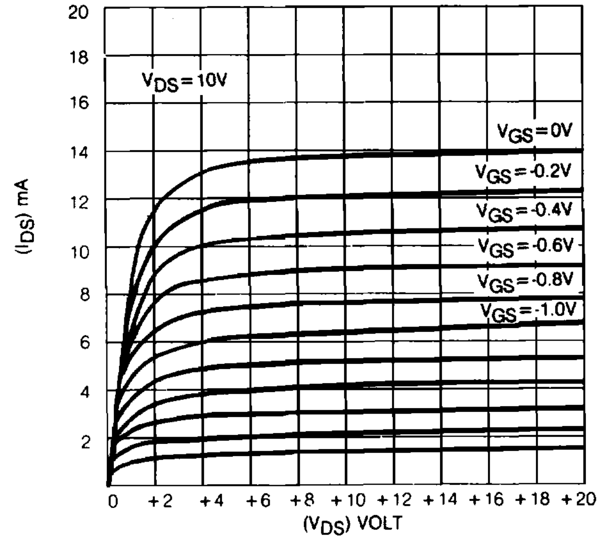
ZERO GATE VOLTAGE VS DRAIN CURRENT IDSS (mA)



TRANSFER CHARACTERISTICS



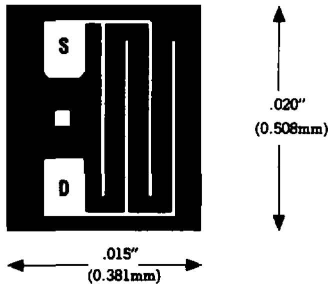
OUTPUT CHARACTERISTICS



N-CHANNEL JUNCTION FET

CHIP NUMBER

FN39.8



Die Size: 15 x 20 (mils) 0.381 x 0.508(mm)

Pad Size: 3.5 x 4.5 (mils) 0.089 x 0.114(mm)

GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

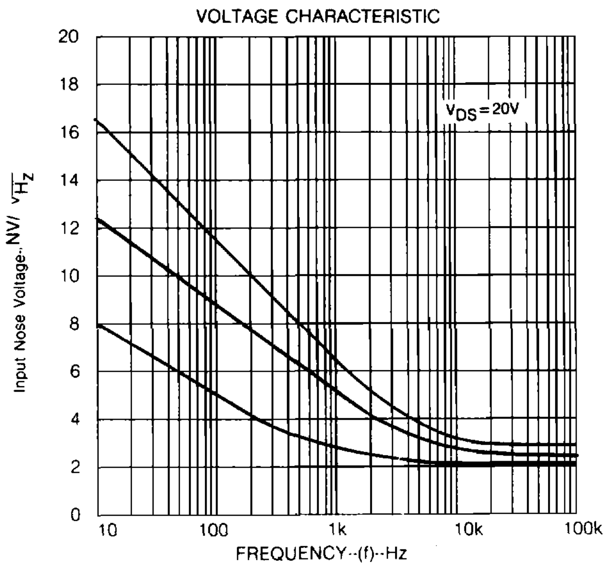
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

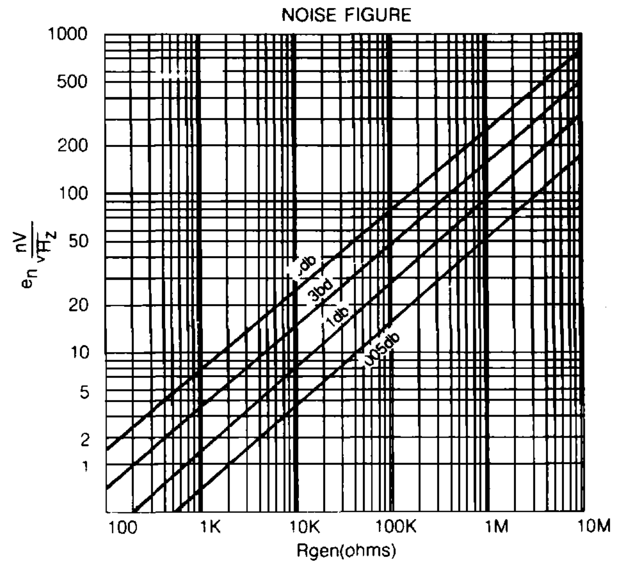
TYPICAL ELECTRICAL CHARACTERISTICS

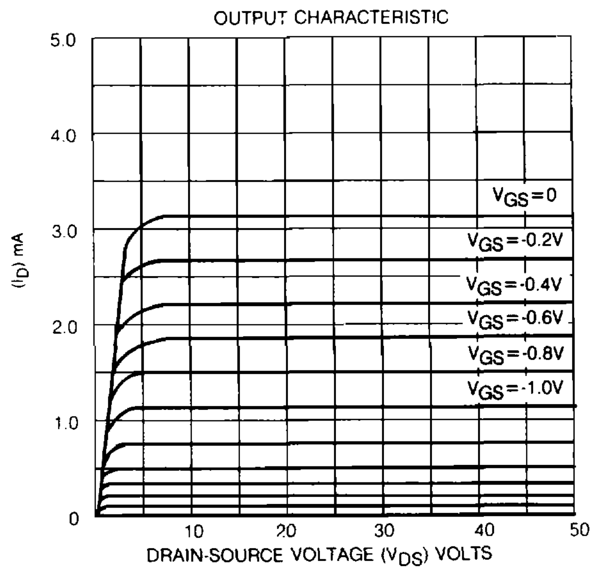
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	-40	-50	-70	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	0.1	3.0	10	mA	V_{DS} = 20V, V_{GS} = 0
g_{fs}	0.5	1.8	3.5	μmho	V_{DS} = 20V, $V_{GS,}$ = 0
I_{GSS}		-10	-100	pA	V_{GS} = -30V, V_{DS} = 0
r_{DS}		500	2000	Ω	V_{DS} = 100mV, V_{GS} = 0
$V_{GS(off)}$		-2.5	-6.0	V	V_{DS} = 20V, I_D = 1mA
C_{rss}		2.0	4.0	pF	V_{DS} = 20V, V_{GS} = 0, f = 1MHz
C_{iss}		5.0	7.0	pF	V_{DS} = 20V, V_{GS} = 0, f = 1MHz
$\bar{e}_n$		10	30	nV/√Hz	V_{DS} = 15V, I_D = .2mA, f = 10Hz

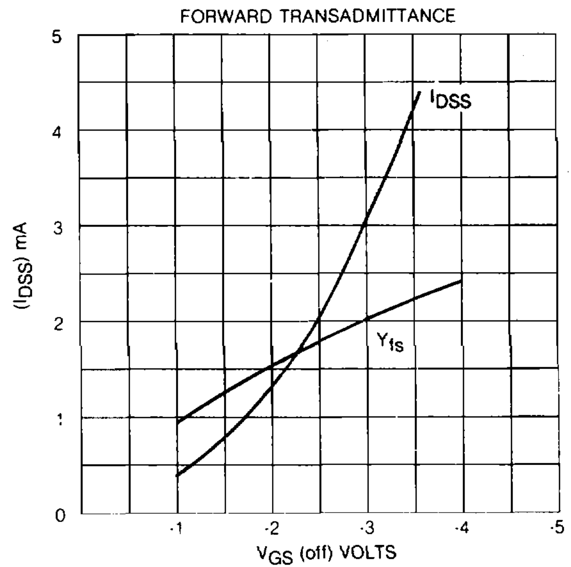
TYPICAL DEVICE TYPES: SDF500 Thru SDF 505, 2N5515 - 2N5524, 2N4867, 2N4868

CHIP TYPE FN39.8





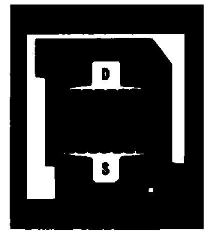




N-CHANNEL JUNCTION FET

CHIP NUMBER

FN71.1



Die Size: 19 x 20 (mils)
0.483 x 0.508(mm)
Pad Size: 3 x 3 (mils)
0.076 x 0.076(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

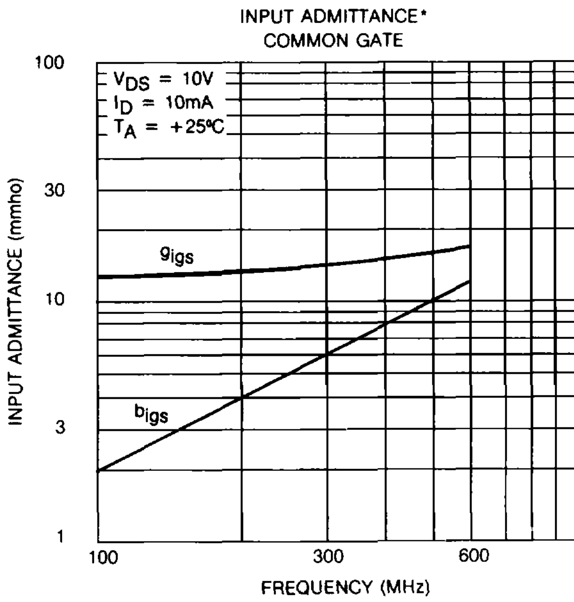
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

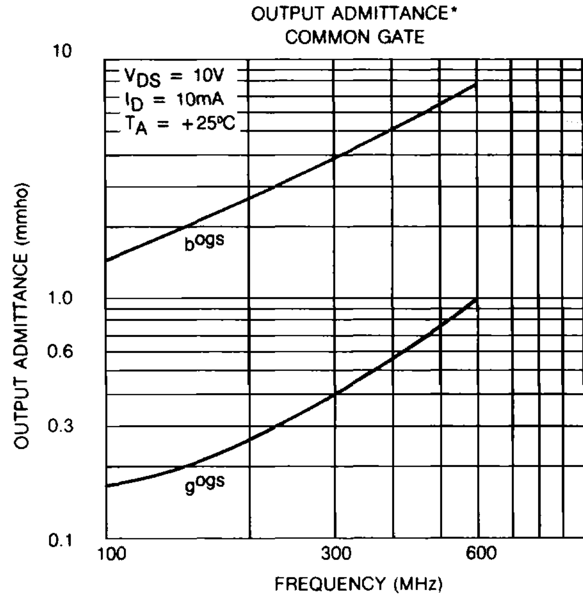
TYPICAL ELECTRICAL CHARACTERISTICS

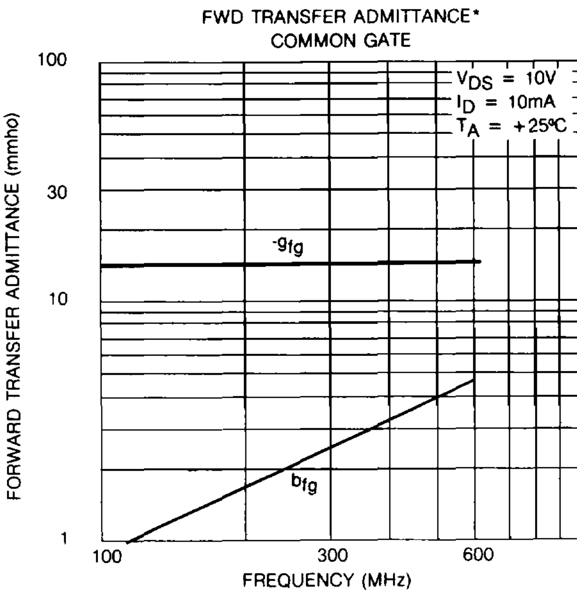
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	-20	-30	-40	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	10	30	60	mA	V_{DS} = 10V, I_G = 1μA
g_{fs}		15	20	mmho	V_{DS} = 10V, I_D = 10mA, f = 1KHz
I_{GSS}		40	150	pA	V_{GS} = -15V, V_{DS} = 0
V_{GS}	- 1	- 5	- 8V	V	V_D = 10V, I_D = 1nA
NF			1.5	dB	V_{DS} = 10V, I_D = 10mA, f = 100MHz
C_{gd}		1.8	2.5	pF	V_{DS} = 10V, I_D = 10mA, f = 1MHz
C_{gs}		4.0	5.0	pF	V_{DS} = 10V, I_D = 10mA, f = 1MHz
$\bar{e}_n$		10	20	nV/√Hz	V_{DS} = 10V, I_D = 10mA, f = 100Hz

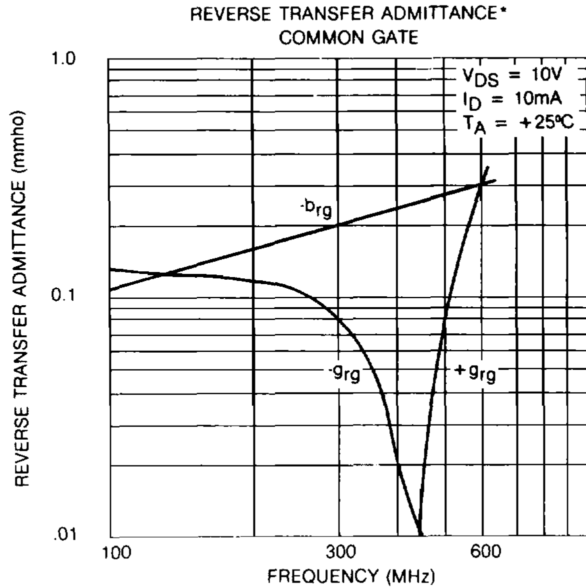
TYPICAL DEVICE TYPES: U308 - U311

CHIP TYPE FN71.1





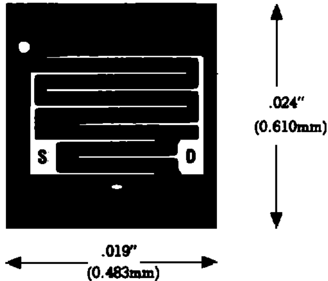




N-CHANNEL JUNCTION FET

CHIP NUMBER

FN88.8



Die Size: 19 x 24 (mils)
0.483 x 0.610(mm)
Pad Size: 3 x 4 (mils)
0.076 x 0.102(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

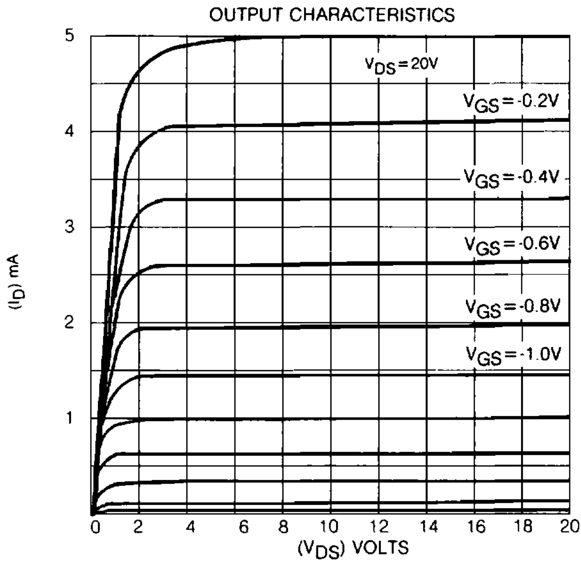
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

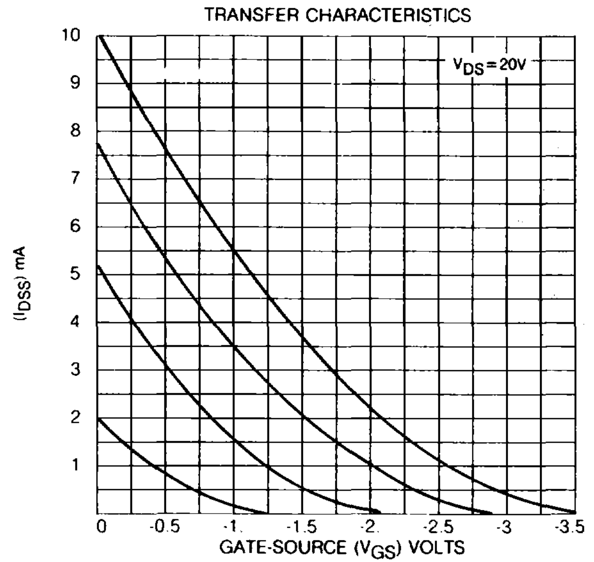
TYPICAL ELECTRICAL CHARACTERISTICS

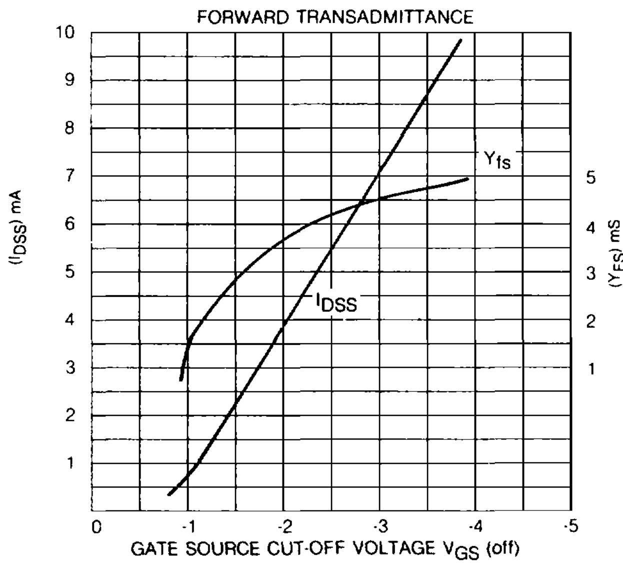
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	-40	-60	-80	V	V_{DS} = 0, I_G = 1μA
I_{DSS}	0.2	3.0	10	mA	V_{DS} = 20V, V_{GS} = 0
g_{fs}	0.4	2.5	5.5	mmho	V_{DS} = 20V, $V_{GS,}$ = 0
R_{DS}		500		Ω	V_{DS} = 100mV, V_{GS} = 0
V_{GS}(off)		-2.0	-4.5	V	V_{DS} = 20V, I_D = 1nA
C_{rss}		3.0	5.0	pF	V_{DS} = 20V, V_{GS} = 0, f = 1MHz
C_{iss}		15	20	pF	V_{DS} = 20V, V_{GS} = 0, f = 1MHz
$\bar{e}_n$		7	30	nV/√Hz	V_{DG} = 15V, I_D = .2mA, f = 10Hz
G_{os}		1.0	5	μmho	V_{DS} = 20V, V_{GS} = 0, f = 1KHz

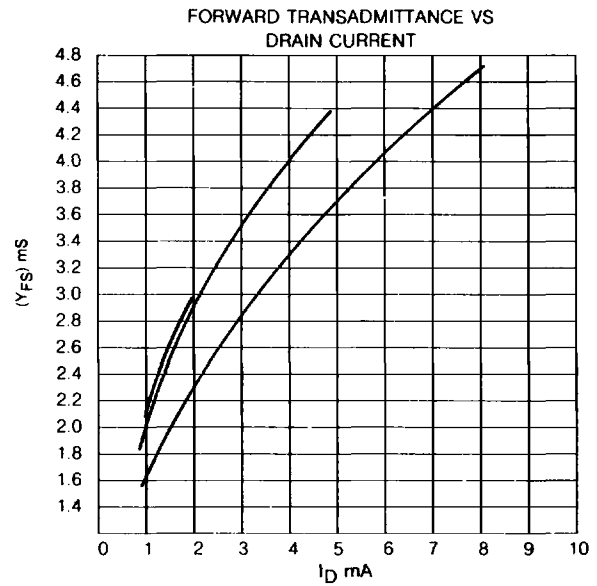
TYPICAL DEVICE TYPES: 2N4869, 2N5592-2N5594

CHIP TYPE FN88.8





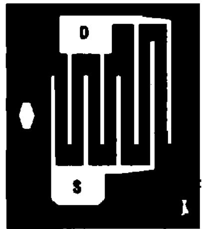




P-CHANNEL JUNCTION FET

CHIP NUMBER

FP5.3



.020" (0.508mm)

.015" (0.381mm)

Die Size: .15 x 20 (mils)
0.381 x 0.508(mm)
Pad Size: 3 x 4 (mils)
0.076 x 0.102(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

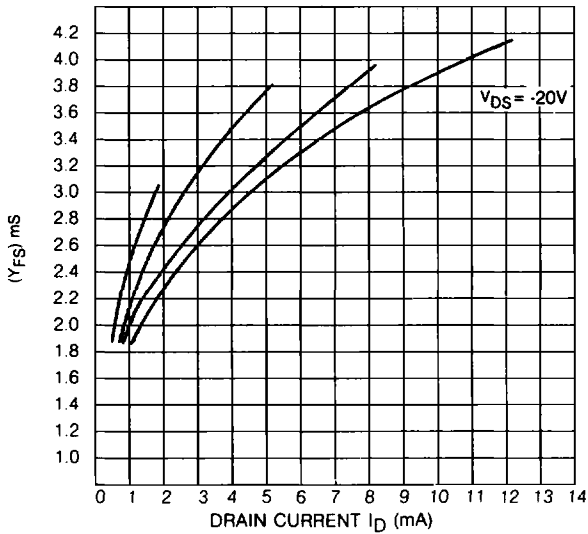
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

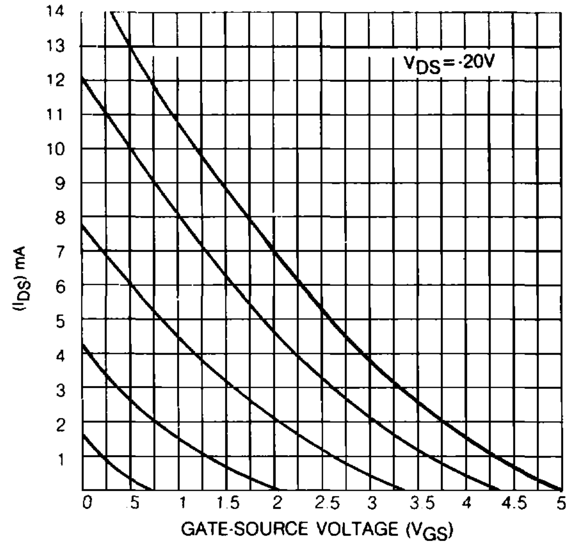
TYPICAL ELECTRICAL CHARACTERISTICS

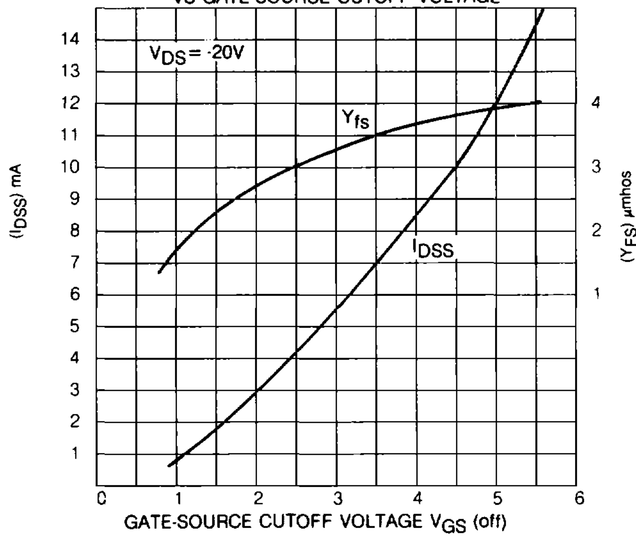
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	30	40	50	V	V_{DS} = —0, I_G = 1μA
I_{DSS}	0.5	8.0	20	mA	V_{DS} = —20V, V_{GS} = 0
g_{fs}		4000		μmho	V_{DS} = —20V, V_{GS}, = 0
I_{GSS}		30	200	pA	V_{GS} = —20V, V_{DS} = 0
r_{DS}		300		Ω	V_{DS} = 100mV, V_{GS} = 0
$V_{GS(off)}$	1.0	2.5	8.0	V	V_{DS} = —20V, I_D = 1nA
C_{rss}		1.8	2.5	pF	V_{DS} = —20V, V_{GS} = 0, f = 1MHz
C_{iss}		7.0	9.0	pF	V_{DS} = —20V, V_{GS} = 0, f = 1MHz

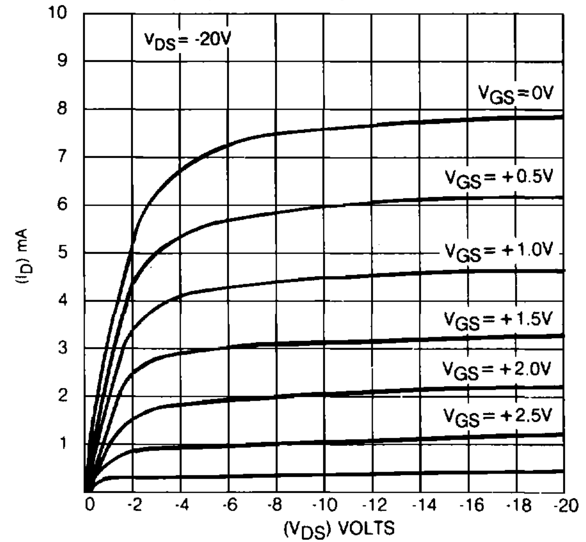
TYPICAL DEVICE TYPES: UC400, UC410, UC420, 2N2607, 2N2608, 2N2609, 2N2842, 2N2844

CHIP TYPE FP5.3





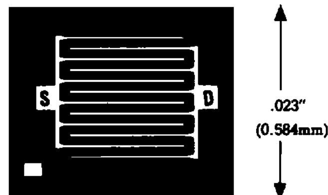




P-CHANNEL JUNCTION FET

CHIP NUMBER

FP7.3



Die Size: 29 x 23 (mils)
0.737 x 0.584(mm)
Pad Size: 3 x 3 (mils)
0.076 x 0.076(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

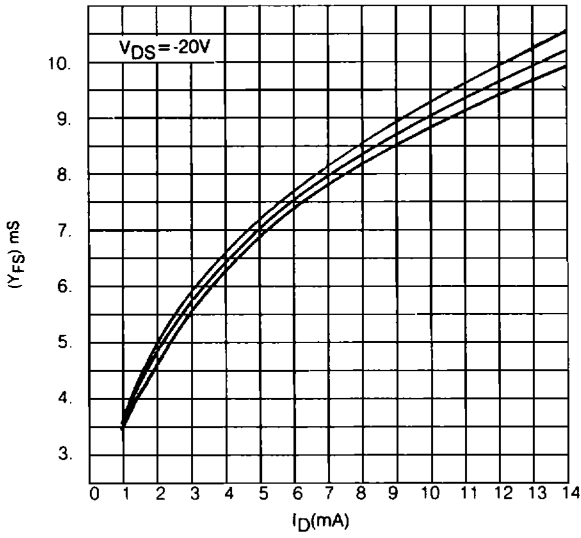
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

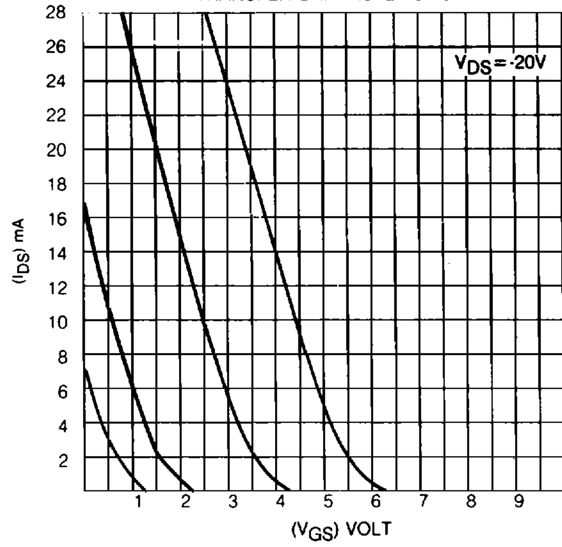
TYPICAL ELECTRICAL CHARACTERISTICS

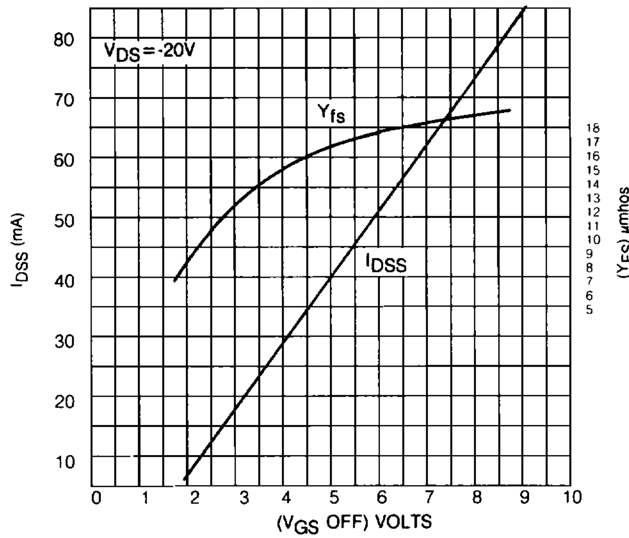
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	25	40	50	V	$V_{DS} = 0$, $I_G = 1\mu A$
I_{DSS}	-5.0	-30	-120	mA	$V_{DS} = -15V$, $V_{GS} = 0$
g_{fs}		10		mmho	$V_{DS} = -15V$, $V_{GS,} = 0$
I_{GSS}		50	500	pA	$V_{GS} = 20V$, $V_{DS} = 0$
r_{DS}	40	100	200	Ω	$V_{DS} = 100mV$, $V_{GS} = 0$
$V_{GS(off)}$	1.0	4.0	10	V	$V_{DS} = -15V$, $I_D = 1nA$
C_{rss}		4.5		pF	$V_{DS} = 0$, $V_{GS} = 10V$, $f = 1MHz$
C_{iss}		20	25	pF	$V_{DS} = -15V$, $V_{GS} = 0$, $f = 1MHz$

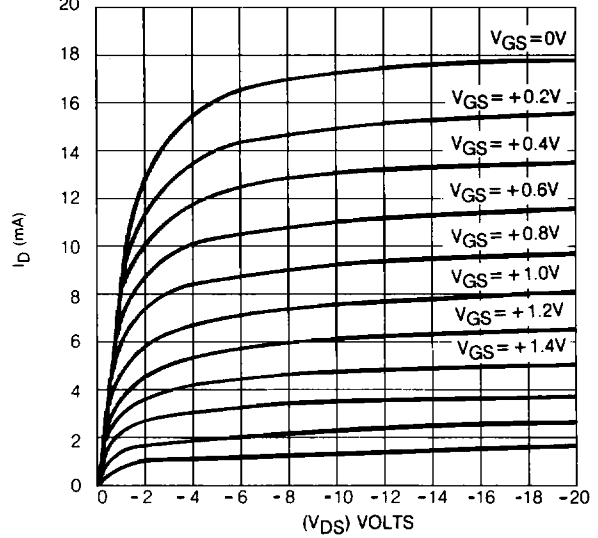
TYPICAL DEVICE TYPES: 2N5018, 2N5019, 2N5114 - 2N5116, 2N5319

CHIP TYPE FP7.3





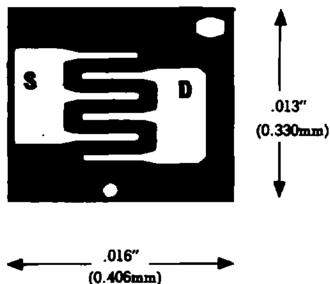




P-CHANNEL JUNCTION FET

CHIP NUMBER

FP22.2



Die Size:	13 x 16 (mils)
	0.330 x 0.406(mm)
	4 x 6 (mils)
Pad Size:	0.102 x 0.152(mm)

GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000 Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

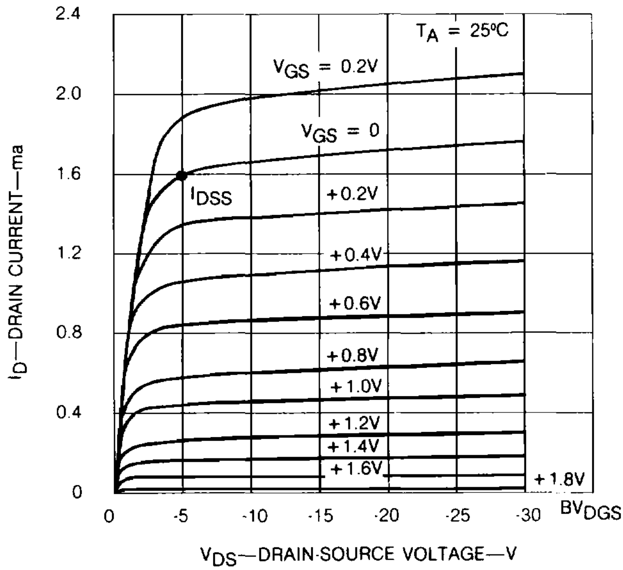
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

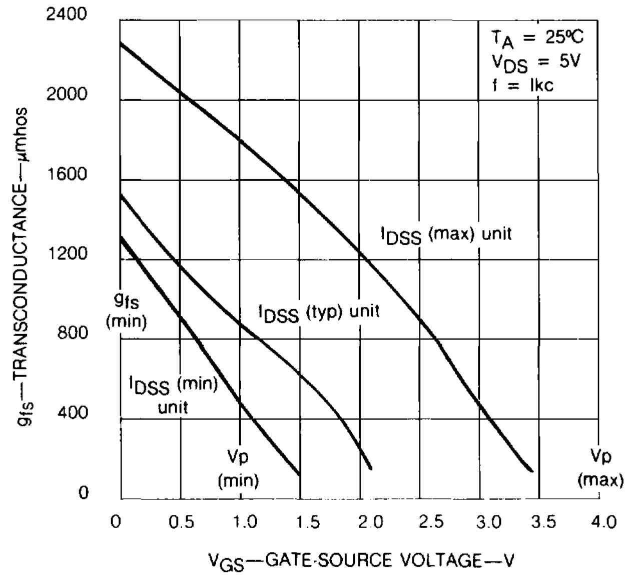
TYPICAL ELECTRICAL CHARACTERISTICS

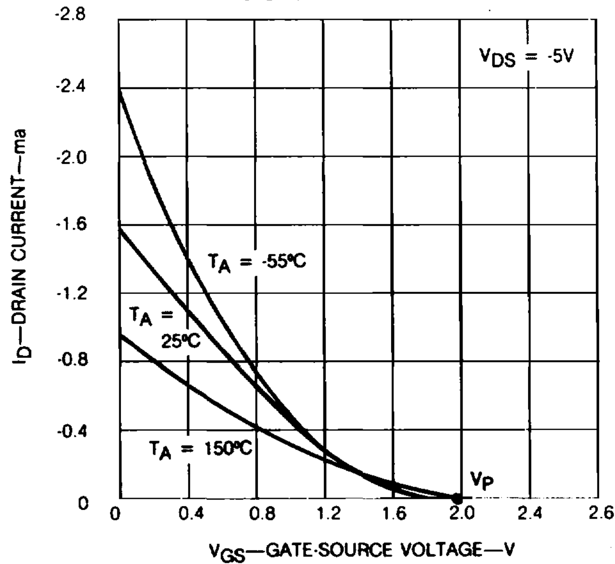
PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
B_{VGSS}	40	55		V	V_{DS} = 0, I_G = 1μA
I_{DSS}	0.1		6	mA	V_{DS} = -15V, V_{GS} = 0
V_p	0.5		6	V	V_{DS} = -15V, I_D, = 1nA
I_{GSS}		20	100	pA	V_{DS} = 0, V_{GS} = 30V
G_m	0.2	1	2	mS	V_{DS} = -15V, V_{GS} = 0, f = 1KHz
C_{iss}		4	5	pF	V_{DS} = -15, V_{GS} = 0, f = 1MHz
C_{rss}		0.9	1.5	pF	V_{DS} = -15V, V_{GS} = 0, f = 1MHz

TYPICAL DEVICE TYPES: 2N2606 - 2N2608, 2N3376, 2N3378, 2N3695 - 2N3698

CHIP TYPE FP22.2



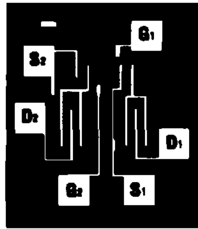




N-CHANNEL DUAL JUNCTION FET CASCODE

CHIP NUMBER

DCN2.3



Die Size: 27 x 29 (mils)
0.686 x 0.737(mm)
Pad Size: 4 x 4 (mils)
0.102 x 0.102(mm)
GATE-SUBSTRATE

CONTACT METALLIZATION

Top Contact: > 12,000
Å Aluminum

Backside Contact: 3,000 Å Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the die be eutectically mounted with gold silicon preform 98/2%.

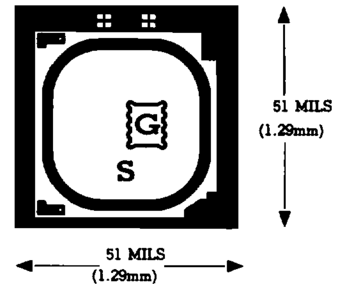
b) 1 mil (0.0254mm) aluminum wire be ultrasonically attached to the top contact.

TYPICAL ELECTRICAL CHARACTERISTICS

PARAMETER	MIN.	TYP	MAX.	UNIT	TEST CONDITIONS
BV_{GSS}	- 40	- 50		V	V_{DS} = 0, I_G = -1μA
I_{DSS}	30		500	μA	V_{DS} = 10V, V_{GS} = 0
I_G		0.05	1	pA	V_{DS} = 10, $I_{D,}$ = 30μA
V_p	-0.6		-4.5	V	V_{DS} = 10, I_D = 1nA
g_{fs}	40		150	μs	V_{DS} = 10, I_D = 30μA
y_{OS}		0.05	1	μs	V_{DS} = 10, I_D = 30μA
C_{iss}			4	pF	V_{DS} = 10, I_D = 30μA
C_{rss}			0.5	pF	V_{DS} = 10, I_D = 30μA

TYPICAL DEVICE TYPES: SDF530 - SDF537

CHIP NUMBER SVN101



Die Size: 51x51 (mils) 1.29x1.29 (mm)
Pad Size: 20x40 (mils) 0.51x1.02 (mm)

CONTACT METALLIZATION

Top Contact: 22,000
A Aluminum

Backside Contact: 3,000 A Gold

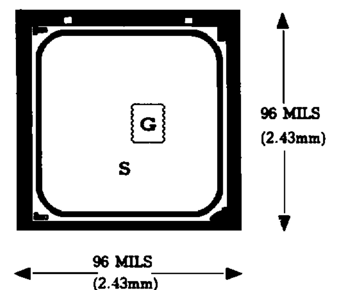
ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the chip be eutectically mounted with gold silicon preform 98/2%.

b) 8 mil aluminum wire be ultrasonically attached to the top contact.

CHIP NUMBER SVN105



Die Size: 96x96 (mils) 2.43x2.43 (mm)
Pad Size: 20x40 (mils) 0.51x1.02 (mm)

CONTACT METALLIZATION

Top Contact: 22,000
A. Aluminum

Backside Contact: 3,000 A Gold

ASSEMBLY RECOMMENDATIONS

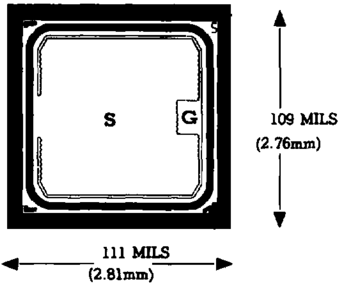
It is advisable that:

a) the chip be eutectically mounted with gold silicone preform 98/2%.

b) 8 mil aluminum wire be ultrasonically attached to the top contact.

SOLITRON POWER MOS FET

CHIP NUMBER SVN402



Die Size: 20x40 (mils) 0.51x1.02 (mm)
Pad Size: 111x109 (mils) 2.81x2.76 (mm)

CONTACT METALLIZATION

Top Contact: 22,000 A Aluminum

Backside Contact: 3,000 A Gold

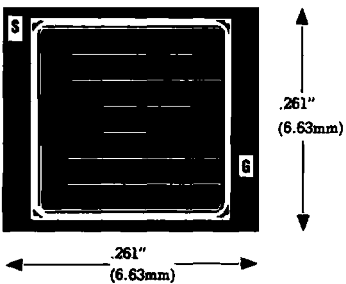
ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the chip be eutectically mounted with gold silicon preform 98/2%.

b) 8 mil aluminum wire be ultrasonically attached to the top contact.

CHIP NUMBER SVN415



Die Size: 261 x 261 (mils) 6.63 x 6.63 (mm)
Pad Size: 60 x 40 (mils) 1.524 x 1.016 (mm)

CONTACT METALLIZATION

Top Contact: 22,000 A Aluminum

Backside Contact: 3,000 A Gold

ASSEMBLY RECOMMENDATIONS

It is advisable that:

a) the chip be eutectically mounted with gold silicon preform 98/2%.

b) 8 mil aluminum wire be ultrasonically attached to the top contact.