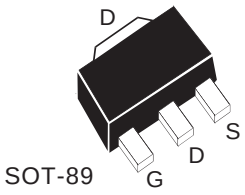
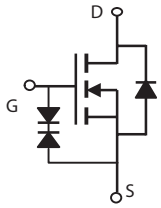
N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V_{DSS}	I_D	$R_{DS(ON)}$ (Ω) Max
80V	0.6A	1.2 @ VGS=10V
		1.5 @ VGS=4.5V

FEATURES

- Super high dense cell design for low $R_{DS(ON)}$.
- Rugged and reliable.
- Suface Mount Package.
- ESD Protected.





ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter		Limit	Units
V_{DS}	Drain-Source Voltage		80	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Drain Current-Continuous [a]	T_A=25°C	0.6	A
		T_A=70°C	0.48	A
I_{DM}	-Pulsed [b]		3.2	A
P_D	Maximum Power Dissipation	T_A=25°C	1.25	W
		T_A=70°C	0.8	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range		-55 to 150	°C

THERMAL CHARACTERISTICS

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	100	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	80			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=64V , V_{GS}=0V			1	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}= ±20V , V_{DS}=0V			±10	uA
ON CHARACTERISTICS						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	1	1.9	3	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10V , I_D=0.30A		1.00	1.20	ohm
		V_{GS}=4.5V , I_D=0.28A		1.15	1.50	ohm
g_{FS}	Forward Transconductance	V_{DS}=10V , I_D=0.30A		0.9		S
DYNAMIC CHARACTERISTICS [c]						
C_{ISS}	Input Capacitance	V_{DS}=25V,V_{GS}=0V f=1.0MHz		61		pF
C_{OSS}	Output Capacitance			18		pF
C_{RSS}	Reverse Transfer Capacitance			9		pF
SWITCHING CHARACTERISTICS [c]						
$t_{D(ON)}$	Turn-On Delay Time	V_{DD}=40V I_D=0.30A V_{GS}=10V R_{GEN}= 6 ohm		7.3		ns
t_r	Rise Time			7		ns
$t_{D(OFF)}$	Turn-Off Delay Time			70		ns
t_f	Fall Time			11.3		ns
Q_g	Total Gate Charge	V_{DS}=40V,I_D=0.30A,V_{GS}=10V		1.8		nC
		V_{DS}=40V,I_D=0.30A,V_{GS}=4.5V		1.3		nC
Q_{gs}	Gate-Source Charge	V_{DS}=40V,I_D=0.30A, V_{GS}=10V		0.5		nC
Q_{gd}	Gate-Drain Charge			0.6		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=0.3A		0.83	1.3	V

Notes

a.Surface Mounted on FR4 Board,t ≤ 10sec.
b.Pulse Test:Pulse Width ≤ 300us, Duty Cycle ≤ 2%.
c.Guaranteed by design, not subject to production testing.

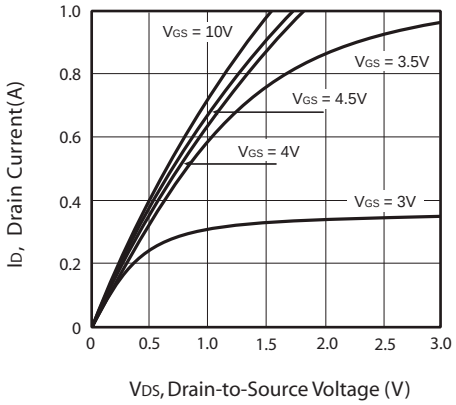


Figure 1. Output Characteristics

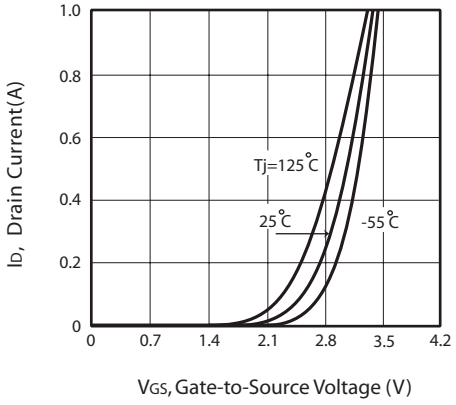


Figure 2. Transfer Characteristics

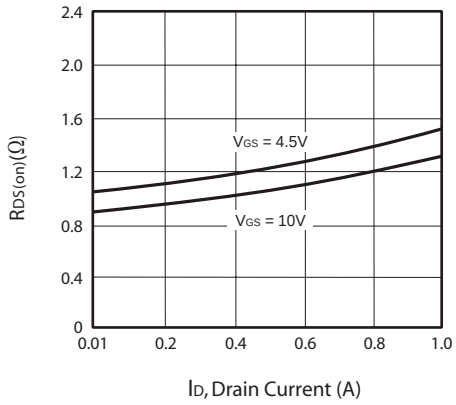


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

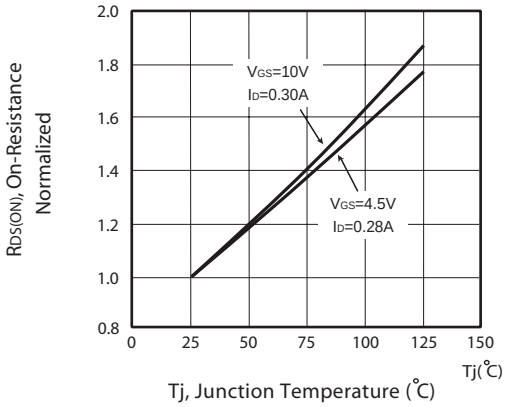


Figure 4. On-Resistance Variation with Drain Current and Temperature

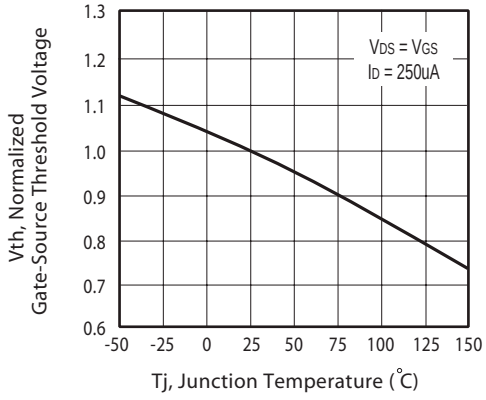


Figure 5. Gate Threshold Variation with Temperature

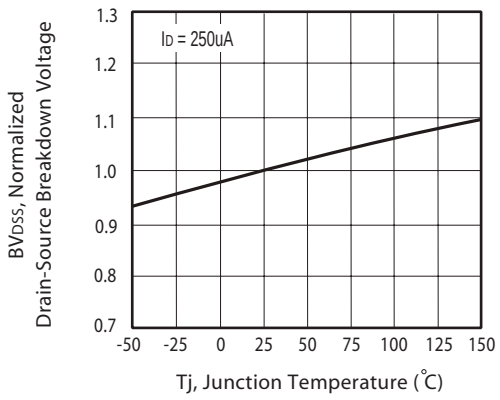


Figure 6. Breakdown Voltage Variation with Temperature

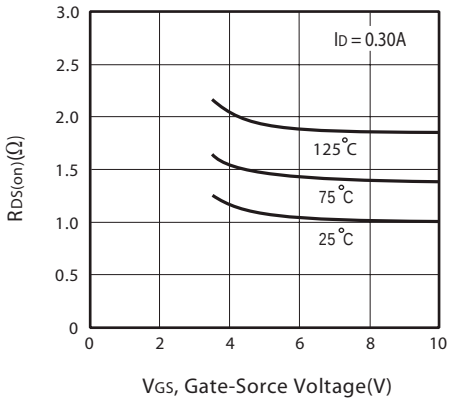


Figure 7. On-Resistance vs. Gate-Source Voltage

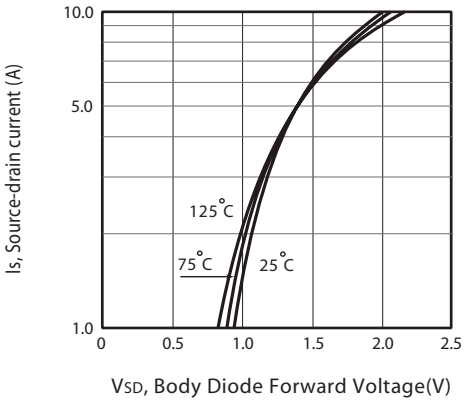


Figure 8. Body Diode Forward Voltage Variation with Source Current

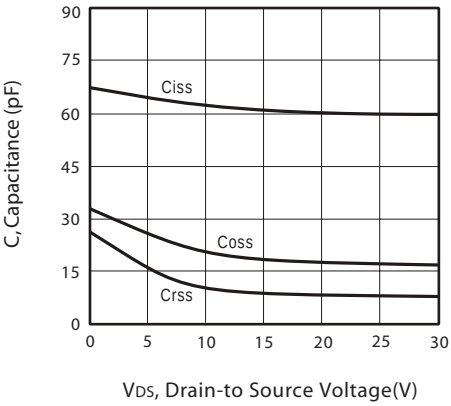


Figure 9. Capacitance

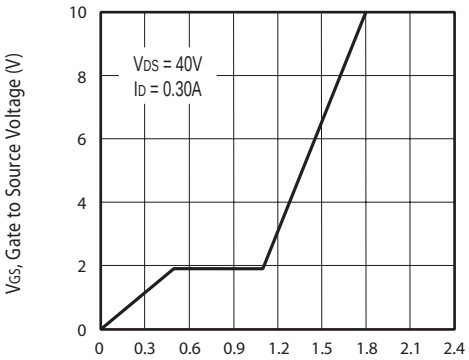


Figure 10. Gate Charge

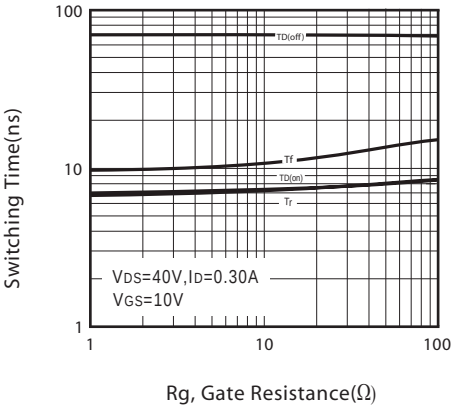


Figure 11. switching characteristics

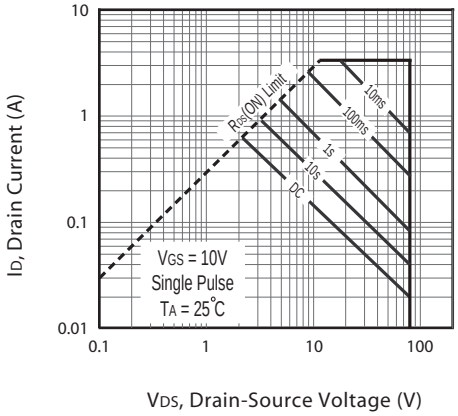
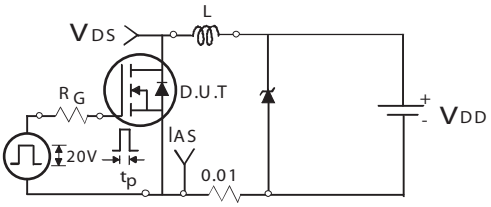
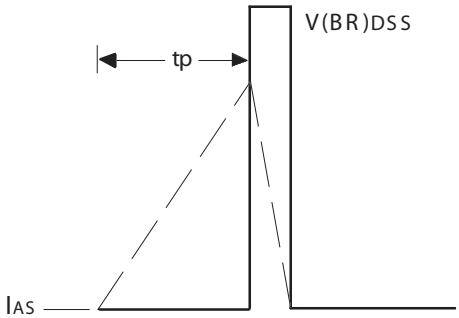


Figure 12. Maximum Safe Operating Area



Unclamped Inductive Test Circuit

Figure 13a.



Unclamped Inductive Waveforms

Figure 13b.

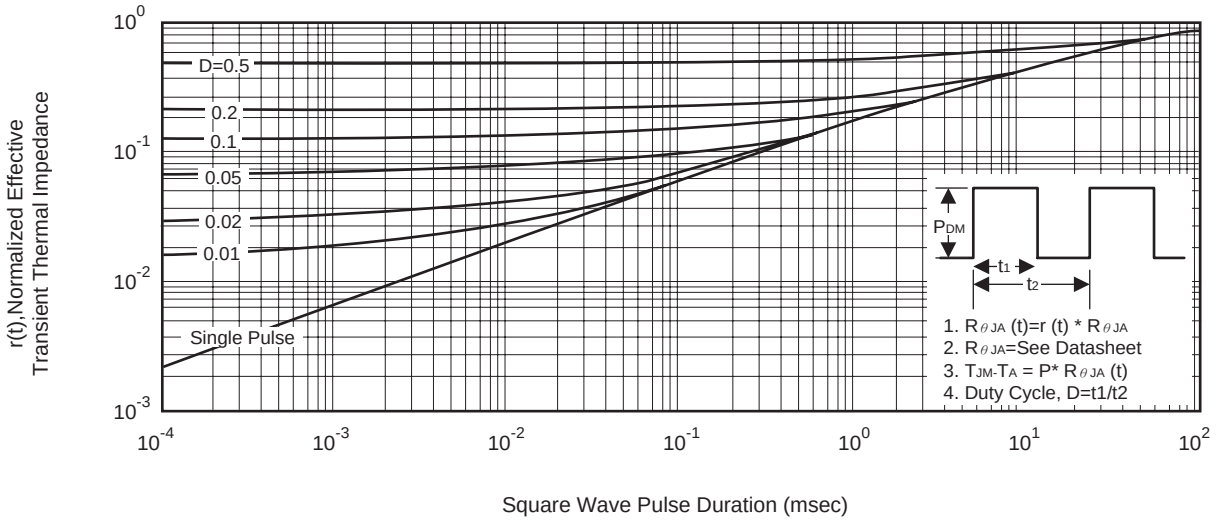
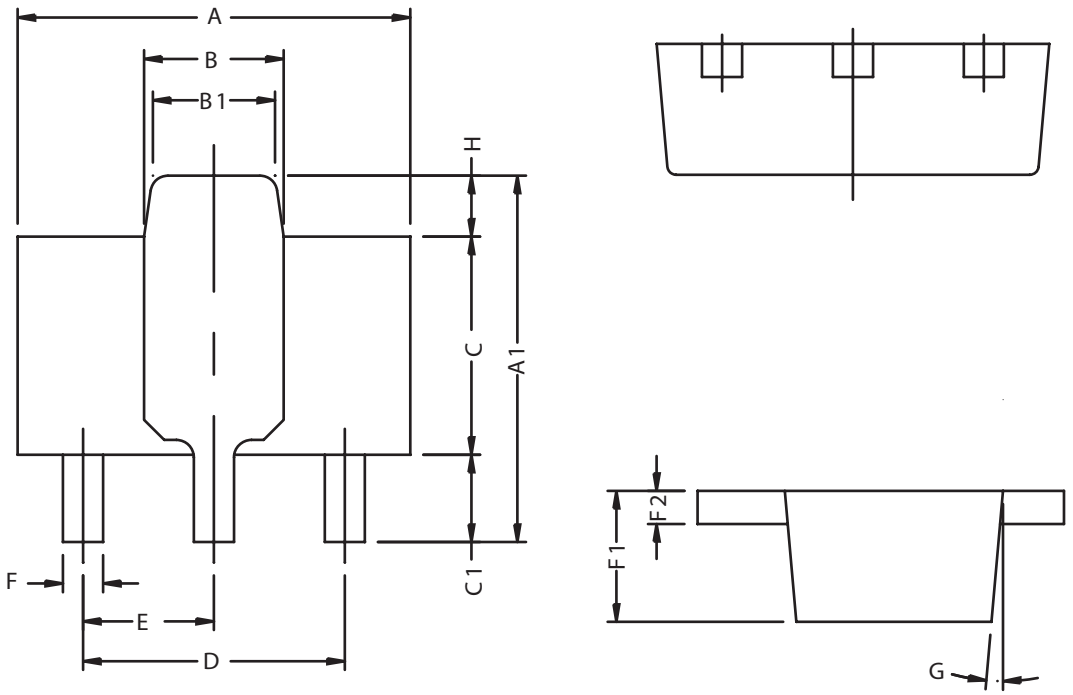


Figure 14. Normalized Thermal Transient Impedance Curve

PACKAGE OUTLINE DIMENSIONS

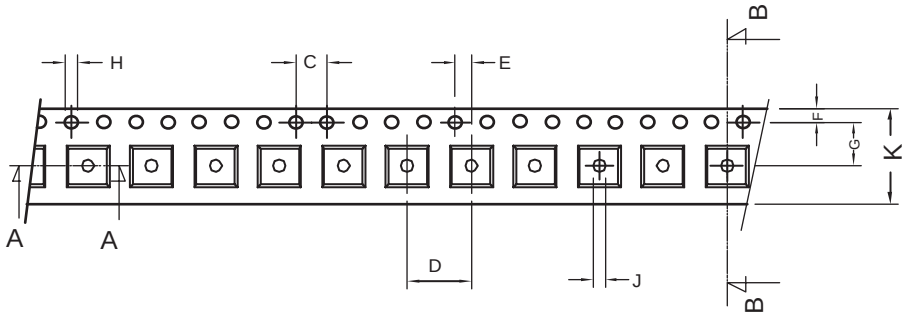
SOT-89

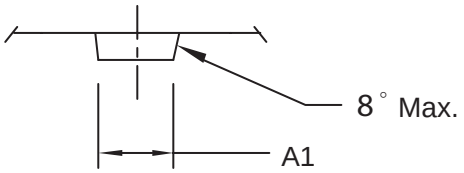


REF.	DIMENSIONS Milimeters	
	MIN.	MAX.
A	4.40	4.60
A1	4.05	4.25
B	1.50	1.70
B1	1.30	1.50
C	2.40	2.60
C1	0.89	1.20
D	3.00 REF.	
E	1.50 REF.	
F	0.40	0.52
F1	1.40	1.60
F2	0.35	0.41
G	5° TYP.	
H	0.70 REF.	

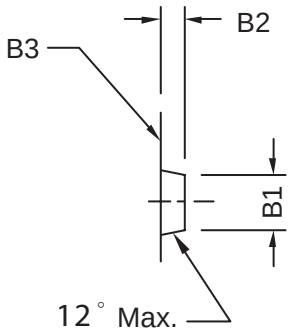
SOT-89 Tape

SOT-89 Carrier Tape





SECTION A-A



SECTION B-B

unit:㎜

PACKAGE	A1	B1	B2	C	D	E	B3	F	G	H	J	K	10C
SOP 8N 150㎜	4.85 ±0.10	4.45 ±0.10	1.85 ±0.10	4.0 ±0.10	8.0 ±0.10	2.0 ±0.05	0.254 ±0.02	1.75 ±0.10	5.5 ±0.05	1.50 ±0.10	1.5 ±0.25	12.0 +0.30 -0.10	40.0 ±0.20