

3N155 3N156

TO-72 (TO-206AF)

MOSFET
SWITCHING

P-CHANNEL — ENHANCEMENT

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	+ 35	Vdc
Drain-Gate Voltage	V_{DG}	+ 50	Vdc
Gate-Source Voltage	V_{GS}	+ 50	Vdc
Drain Current	I_D	30	mAdc
Total Device Dissipation (at $T_A = 25^\circ\text{C}$ Derate above 25°C)	P_D	300 2.0	mW mW/°C
Junction Temperature Range	T_J	- 65 to + 175	°C
Storage Channel Temperature Range	T_{stg}	65 to + 175	°C

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-Source Breakdown Voltage ($I_D = -10 \mu\text{Adc}$, $V_G = V_S = 0$)	$V_{(BR)DSX}$	- 35	—	—	Vdc
Zero-Gate-Voltage Drain Current ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$) ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$, $T_A = 125^\circ\text{C}$)	I_{DSS}	—	—	- 1.0 - 1000	nAdc
Gate Reverse Current ($V_{GS} = +50 \text{ Vdc}$, $V_{DS} = 0$) ($V_{GS} = +25 \text{ Vdc}$, $V_{DS} = 0$)	I_{GSS}	—	—	+ 1000 + 10	pAdc
Resistance Drain Source ($I_D = 0$, $V_{GS} = 0$)	$r_{DS(off)}$	1×10^{-10}	—	—	Ohms
Resistance Gate Source Input ($V_{GS} = -25 \text{ Vdc}$)	R_{GS}	—	1×10^{-16}	—	Ohms
Gate Forward Leakage Current ($V_{GS} = -50 \text{ Vdc}$, $V_{DS} = 0$) ($V_{GS} = -25 \text{ Vdc}$, $V_{DS} = 0$)	$I_{G(f)}$	—	—	- 1000 - 10	pAdc

ON CHARACTERISTICS

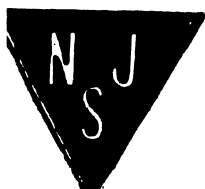
Gate Threshold Voltage ($V_{DS} = -10 \text{ Vdc}$, $I_D = -10 \mu\text{Adc}$)	$V_{GS(Th)}$	- 1.5	—	- 3.2	Vdc
Drain-Source On-Voltage ($I_D = -2.0 \text{ mAdc}$, $V_{GS} = -10 \text{ Vdc}$)	$V_{DS(on)}$	—	—	- 1.0	Vdc
Static Drain-Source On Resistance ($I_D = 0 \text{ mAdc}$, $V_{GS} = -10 \text{ Vdc}$)	$r_{DS(on)}$	—	—	600	Ohms
On-State Drain Current ($V_{DS} = -15 \text{ Vdc}$, $V_{GS} = -10 \text{ Vdc}$)	$I_{D(on)}$	- 5.0	—	—	mAdc

SMALL-SIGNAL CHARACTERISTICS

Drain-Source Resistance ($V_{GS} = -10 \text{ Vdc}$, $I_D = 0$, $f = 1.0 \text{ kHz}$) ($V_{GS} = -15 \text{ Vdc}$, $I_D = 0$, $f = 1.0 \text{ kHz}$)	$r_{ds(on)}$	—	—	400 350	Ohms
Forward Transfer Admittance ($V_{DS} = -15 \text{ Vdc}$, $I_D = -2.0 \text{ mAdc}$, $f = 1.0 \text{ kHz}$)	$ y_{fs} $	1000	—	4000	μmhos
Input Capacitance ($V_{DS} = -15 \text{ Vdc}$, $V_{GS} = -10 \text{ Vdc}$, $f = 140 \text{ kHz}$)	C_{iss}	—	—	5.0	pF
Reverse Transfer Capacitance ($V_{DS} = 0$, $V_{GS} = 0$, $f = 140 \text{ kHz}$)	C_{rss}	—	—	1.3	pF
Drain-Substrate Capacitance ($V_{D(SUB)} = -10 \text{ Vdc}$, $f = 140 \text{ kHz}$)	$C_{d(sub)}$	4.0	—	—	pF

SWITCHING CHARACTERISTICS

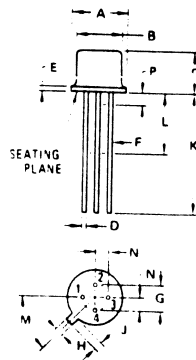
Turn-On Delay	$(V_{DD} = -10 \text{ Vdc}$, $I_{D(on)} = -2.0 \text{ mAdc}$, $V_{GS(on)} = -10 \text{ Vdc}$, $V_{GS(off)} = 0$)	t_d	—	—	45	μs
Rise Time		t_r	—	—	65	ns
Turn-Off Delay		t_s	—	—	60	ns
Fall Time		t_f	—	—	100	ns



Package Outline Dimensions

Dimensions are in inches unless otherwise noted.

TO-72 (TO-206AF)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	4.32	5.33	0.170	0.210
D	1.41	0.53	0.016	0.021
E		0.76		0.030
F	0.41	0.48	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	0.91	1.17	0.036	0.046
J	0.71	1.22	0.028	0.048
K	12.70		0.500	
L	6.35		0.250	
M	45° BSC		45° BSC	
N	1.27 BSC		0.050 BSC	
P		1.27		0.050

ALL JEDEC dimensions and notes apply