

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 (T _A = 25°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°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-Source Breakdown Voltage (I _D = - 10 μAdc, V _G = V _S = 0)	V _{(BR)DSX}	- 35	—	—	Vdc
Zero-Gate-Voltage Drain Current (V _{DS} = - 10 Vdc, V _{GS} = 0) (V _{DS} = - 10 Vdc, V _{GS} = 0, T _A = 125°C)	I _{DSS}	—	—	- 1.0 - 1000	nAdc
Gate Reverse Current (V _{GS} = + 50 Vdc, V _{DS} = 0) (V _{GS} = + 25 Vdc, V _{DS} = 0)	I _{GSS}	—	—	+ 1000 + 10	pAdc
Resistance Drain Source (I _D = 0, V _{GS} = 0)	r _{DS(off)}	1 x 10 ⁻¹⁰	—	—	Ohms
Resistance Gate Source Input (V _{GS} = - 25 Vdc)	R _{GS}	—	1 x 10 ⁻¹⁶	—	Ohms
Gate Forward Leakage Current (V _{GS} = - 50 Vdc, V _{DS} = 0) (V _{GS} = - 25 Vdc, V _{DS} = 0)	I _{G(f)}	—	—	- 1000 - 10	pAdc

ON CHARACTERISTICS

Gate Threshold Voltage (V _{DS} = - 10 Vdc, I _D = - 10 μAdc)	V _{GS(th)}	- 1.5	—	- 3.2	Vdc
Drain-Source On-Voltage (I _D = - 2.0 mAdc, V _{GS} = - 10 Vdc)	V _{DS(on)}	—	—	- 1.0	Vdc
Static Drain-Source On Resistance (I _D = 0 mAdc, V _{GS} = - 10 Vdc)	r _{DS(on)}	—	—	600	Ohms
On-State Drain Current (V _{DS} = - 15 Vdc, V _{GS} = - 10 Vdc)	I _{D(on)}	- 5.0	—	—	mAdc

SMALL-SIGNAL CHARACTERISTICS

Drain-Source Resistance (V _{GS} = - 10 Vdc, I _D = 0, f = 1.0 kHz) (V _{GS} = - 15 Vdc, I _D = 0, f = 1.0 kHz)	r _{ds(on)}	—	—	400 350	Ohms
Forward Transfer Admittance (V _{DS} = - 15 Vdc, I _D = - 2.0 mAdc, f = 1.0 kHz)	y _{fs}	1000	—	4000	μmhos
Input Capacitance (V _{DS} = - 15 Vdc, V _{GS} = - 10 Vdc, f = 140 kHz)	C _{iss}	—	—	5.0	pF
Reverse Transfer Capacitance (V _{DS} = 0, V _{GS} = 0, f = 140 kHz)	C _{rss}	—	—	1.3	pF
Drain-Substrate Capacitance (V _{D(SUB)} = - 10 Vdc, f = 140 kHz)	C _{d(sub)}	4.0	—	—	pF

SWITCHING CHARACTERISTICS

Turn-On Delay	(V _{DD} = - 10 Vdc, I _{D(on)} = - 2.0 mAdc, V _{GS(on)} = - 10 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

