

3N169

N-CHANNEL

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

Rating	Symbol	Value	Unit
*Drain-Source Voltage	V _{DS}	25	Vdc
*Drain-Gate Voltage	V _{DG}	±35	Vdc
*Gate-Source Voltage	V _{GS}	±35	Vdc
*Drain Current	I _D	30	mAdc
Power Dissipation @ T _A = 25°C Derate above 25°C	P _D	300 1.7	mW mW/°C
*Power Dissipation @ T _C = 25°C *Derate above 25°C	P _D	800 4.56	mW mW/°C
Operating Junction Temperature	T _J	175	°C
*Storage Temperature Range	T _{stg}	-65 to +200	°C

*Indicates JEDEC Registered Data.

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

Substrate connected to source.

Characteristic	Figure No.	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Drain-Source Breakdown Voltage (I _D = 10 μAdc, V _{GS} = 0)	—	V(BR)DSS	25	—	Vdc
*Gate Leakage Current (V _{GS} = -35 Vdc, V _{DS} = 0) (V _{GS} = -35 Vdc, V _{DS} = 0, T _A = 125°C)	—	I _{GSS}	—	10 100	pAdc
*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}	—	10 1.0	nAdc μAdc

*ON CHARACTERISTICS

Gate-Source Threshold Voltage (V _{DS} = 10 Vdc, I _D = 10 μAdc)	—	V _{GS(th)}	0.5	1.5	Vdc
"ON" Drain Current (V _{GS} = 10 Vdc, V _{DS} = 10 Vdc)	3	I _{D(on)}	10	—	mAdc
Drain-Source "ON" Voltage (I _D = 10 mAdc, V _{GS} = 10 Vdc)	—	V _{DS(on)}	—	2.0	Vdc

SMALL SIGNAL CHARACTERISTICS

*Drain-Source Resistance (V _{GS} = 10 Vdc, I _D = 0, f = 1.0 kHz)	4	r _{ds(on)}	—	200	Ohms
Forward Transfer Admittance (V _{DS} = 10 Vdc, I _D = 2.0 mAdc, f = 1.0 kHz)	1	Y _{fs}	1000	—	μmhos
*Reverse Transfer Capacitance (V _{DS} = 0, V _{GS} = 0, f = 1.0 MHz)	2	C _{rss}	—	1.3	pF
*Input Capacitance (V _{DS} = 10 Vdc, V _{GS} = 0, f = 1.0 MHz)	2	C _{iss}	—	5.0	pF
*Drain-Substrate Capacitance (V _{D(SUB)} = 10 Vdc, f = 1.0 MHz)	—	C _{d(sub)}	—	5.0	pF

*SWITCHING CHARACTERISTICS

Turn-On Delay Time	(V _{DD} = 10 Vdc, I _{D(on)} = 10 mAdc,	8,10	t _{d(on)}	—	3.0	ns
Rise Time	V _{GS(on)} = 10 Vdc, V _{GS(off)} = 0,	7,10	t _r	—	10	ns
Turn-Off Delay Time	R _G = 50 Ohms)	8,10	t _{d(off)}	—	3.0	ns
Fall Time		9,10	t _f	—	15	ns

*Indicates JEDEC Registered Data.

