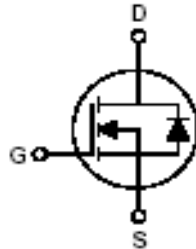
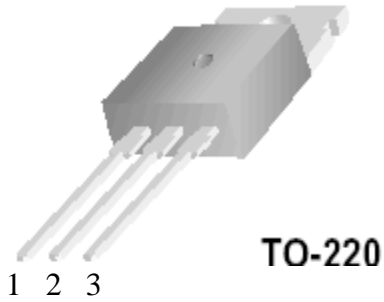


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PIN CONFIGURATION



1.Gate 2.Drain 3.Source

FEATURE

- Robust High Voltage Termination.
- Avalanche Energy Specified
- Source-to Drain Diode Recovery Time Comparable to a Discrete Fast Recovery Diode
- Diode is Characterized for Use in Bridge Circuits
- I_{DSS} and $V_{DS(on)}$ Specified at Elevated Temperature

ABSOLUTE MAXIMUM RATINGS

RATING	SYMBOL	VALUE	UNIT
Drain to Current - Continuous - Pulsed	I_D I_{DM}	2.0 9.0	A
Gate-to-Source Voltage – Continue - Non-repetitive	V_{GS} V_{GSM}	+/-20 +/-40	V V
Total Power Dissipation TO-251/252 TO-220	P_D	60 60	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	
Single Pulse Drain-to-Source Avalanche Energy – $T_j = 25$ ($V_{DD} = 100V, V_{GS} = 10V, I_{AS} = 2A, L = 10mH, R_G = 25 \Omega$)	E_{AS}	20	mJ
Thermal Resistance – Junction to Case - Junction to Ambient	θ_{JC} θ_{JA}	1.0 62.5	/W
Maximum Lead Temperature for Soldering Purposes, 1/8” form 10 seconds	T_L	260	



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MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (Ta=25)

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	CONDITION
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	600			Vdc	$V_{GS}=0, I_D=250\mu A$
Drain-Source Leakage Current	I_{DSS}			0.1 1.0	mA mA	$V_{DS}=600V, V_{GS}=0$ $V_{DS}=480V, V_{GS}=0, T_j=125$
Gate-Source Leakage Current-Forward	I_{GSSF}			100	nA	$V_{GSF}=20V, V_{DS}=0$
Gate Threshold Voltage	$V_{GS(th)}$	2.0		4.0	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Drain-Source On-Resistance	$R_{DS(on)}$			4.4	Ohm	$V_{GS}=10V, I_D=1.2A^*$
Input Capacitance	C_{iss}		435		pF	$V_{DS}=25V, V_{GS}=0, f=1\text{ MHz}$
Output Capacitance	C_{oss}		56		pF	
Reverse Transfer Capacitance	C_{rss}		9.2		pF	
Turn-On Delay Time	$t_{d(on)}$		12		nS	$V_{DD}=300V, I_D=2.0A,$ $V_{GS}=10V, R_G=18$
Turn-Off Delay Time	$T_{d(off)}$		30		nS	
Rise Time	t_r		21		nS	
Fall Time	t_f		24		nS	
Total Gate Charge	Q_g		13	22	nC	
Gate-Drain Charge	Q_{gd}		6.0		nC	
Gate-Drain Charge	Q_{gs}		2.0		nC	
Internal Drain Inductance	L_D		4.5		nH	Measured from the drain lead 0.25'' From package to center of die
Internal Drain Inductance	L_s		7.5		nH	Measured from the source lead 0.25'' from package to source bond pad
SOURCE-DRAIN DIODE CHARACTERISTICS						
Forward On-Voltage(1)	VDS			1.5	V	$I_s=2.0A, V_{GS}=0V$ $d_{IS}/d_t = 100A/\mu S$
Forward Turn Time	ton		**		nS	
Reverse Recovery Time	trr		340		nS	

*Pulse Test: Pulse Width 300 μS , Duty Cycle 2%

**Negligible, Dominated by circuit inductance

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TYPICAL CHARACTERISTICS

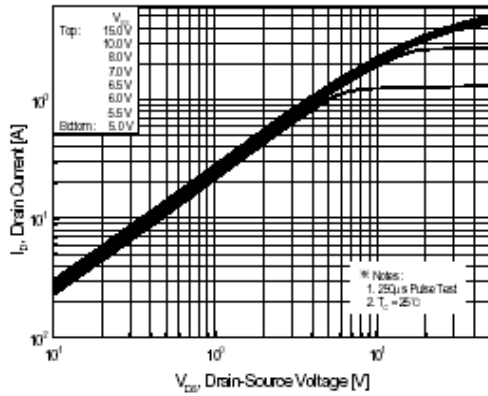


Figure 1. On-Region Characteristics

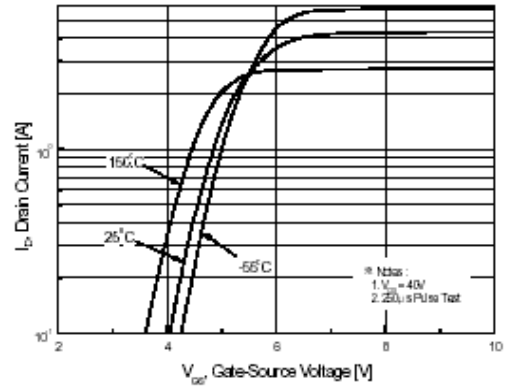


Figure 2. Transfer Characteristics

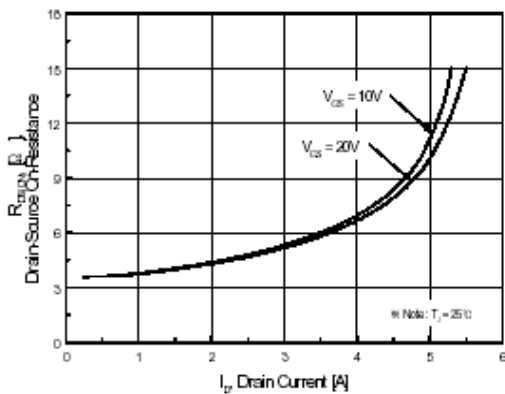


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

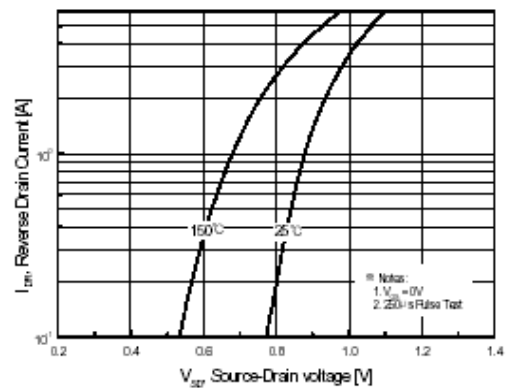


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

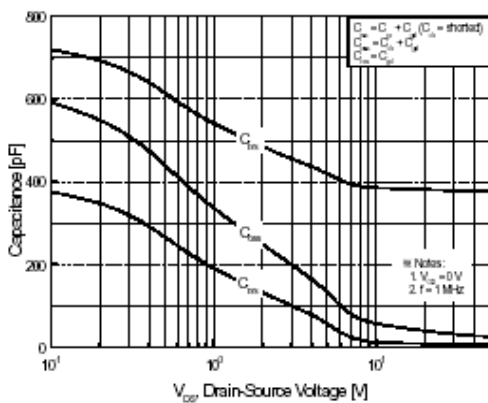


Figure 5. Capacitance Characteristics

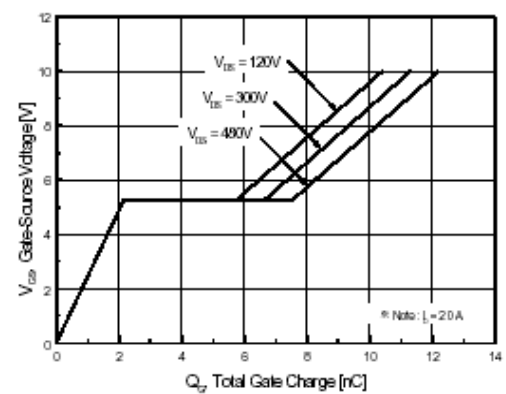


Figure 6. Gate Charge Characteristics

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TYPICAL CHARACTERISTICS (CONTINUED)

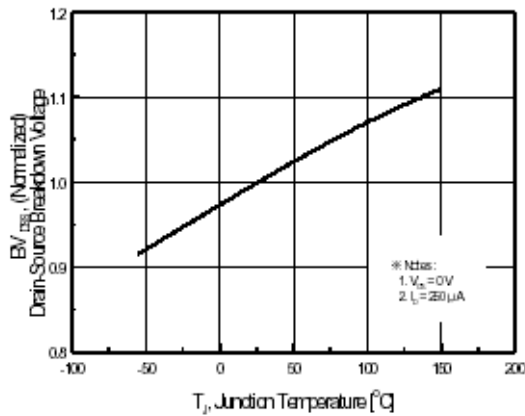


Figure 7. Breakdown Voltage Variation vs Temperature

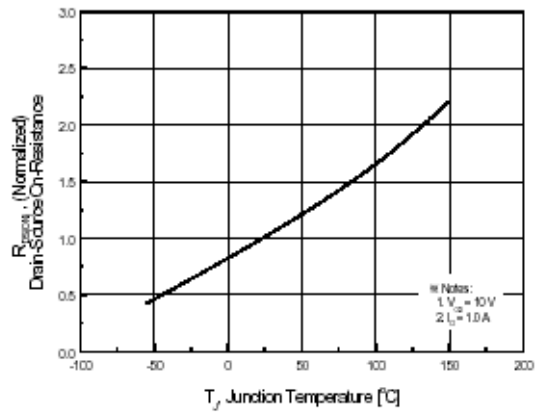


Figure 8. On-Resistance Variation vs Temperature

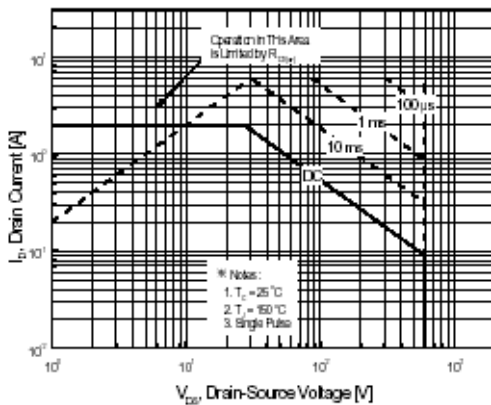


Figure 9-1. Maximum Safe Operating Area

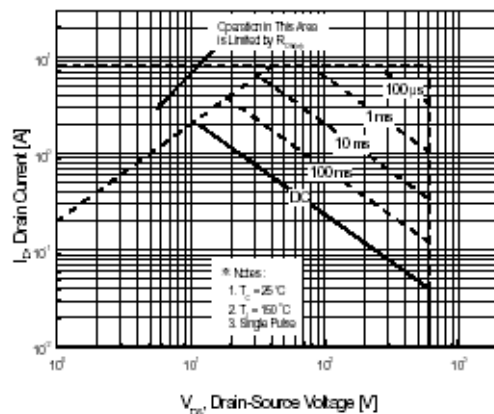


Figure 9-2. Maximum Safe Operating Area

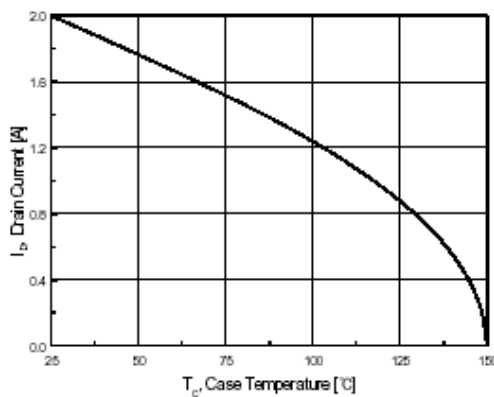
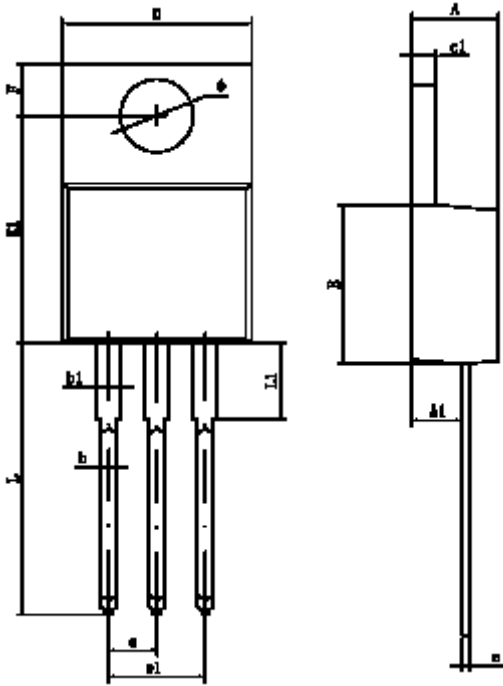


Figure 10. Maximum Drain Current vs Case Temperature

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TO-220-3L PACKAGE OUTLINE DIMENSIONS



SAMBOL	DIMENSIONS IN MILLIMETERS	
	MIN	MAX
A	4.470	4.670
A1	2.520	2.820
B	0.710	0.910
b	1.170	0.910
b1	1.170	1.370
c	0.310	0.530
c1	1.170	1.370
D	10.01	10.31
E	8.500	8.900
E1	12.06	12.46
e	2.540 TYP	
e1	4.980	5.180
F	2.590	2.890
L	13.40	13.80
L1	3.560	3.960
	3.790	3.890



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