

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V _{DSS}	50	V
Gate-Source Voltage			V _{GSS}	±20	V
Continuous Drain Current @ T _{SP} = +25°C (Note 5)	Steady State	T _A = +25°C	I _D	500	mA
		T _A = +100°C		300	
Pulsed Drain Current @ T _{SP} = +25°C (Notes 5 & 6)			I _{DM}	1.2	A

Thermal Characteristics

Characteristic	Symbol	Value	Units
Power Dissipation, @T _A = +25°C (Note 5)	P _D	600	mW
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 5)	R _{θJA}	200	°C/W
Power Dissipation, @T _{SP} = +25°C (Note 5)	P _D	920	mW
Thermal Resistance, @T _{SP} = +25°C (Note 5)	R _{θJSP}	136	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	50	—	—	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	—	—	0.5	μA	V _{DS} = 50V, V _{GS} = 0V
Gate-Body Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(th)}	0.4	1.0	1.5	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(on)}	—	1.3	1.8	Ω	V _{GS} = 10V, I _D = 0.22A
			1.6	2.0		V _{GS} = 4.5V, I _D = 0.1A
Forward Transfer Admittance	Y _{fs}	40	320	—	mS	V _{DS} = 10V, I _D = 0.1A
Diode Forward Voltage	V _{SD}	—	1.0	1.5	V	V _{GS} = 0V, I _S = 180mA
Source (diode forward) Current	I _S	—	—	194	mA	T _{SP} = +25°C
Peak Source (diode forward) Current	I _{SM}	—	—	1.2	A	T _{SP} = +25°C (Note 3)
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	21.8	40	pF	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	5.6	15	pF	
Reverse Transfer Capacitance	C _{rss}	—	3.3	10	pF	
Gate Resistance	R _g	—	49	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _g	—	800	—	pC	V _{GS} = 10V, V _{DD} = 25V, I _D = 250mA
Gate-Source Charge	Q _{gs}	—	100	—	pC	
Gate-Drain Charge	Q _{gd}	—	100	—	pC	
Turn-On Delay Time	t _{D(on)}	—	2.93	—	ns	V _{DD} = 30V, V _{GEN} = 10V, R _L = 150Ω, R _{GEN} = 50Ω, I _D = 0.2A
Turn-On Rise Time	t _r	—	2.99	—	ns	
Turn-Off Delay Time	t _{D(off)}	—	9.45	—	ns	
Turn-Off Fall Time	t _f	—	8.3	—	ns	

- Notes:
- Device mounted on FR-4 PCB, with minimum recommended pad layout.
 - Repetitive rating, pulse width limited by junction temperature.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to production testing.

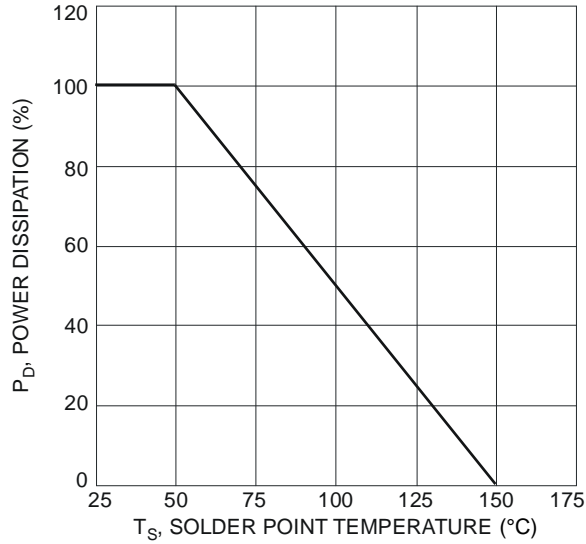


Fig 1. Normalized Total Power Dissipation as a Function of Solder Point Temperature

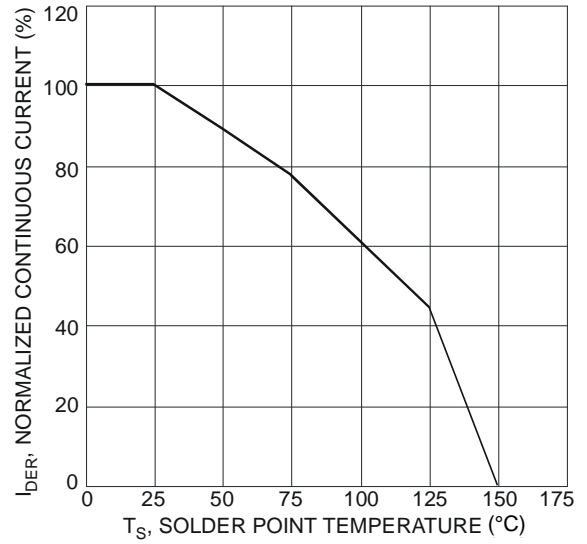


Fig 2. Normalized Continuous Current vs. Solder Point Temperature

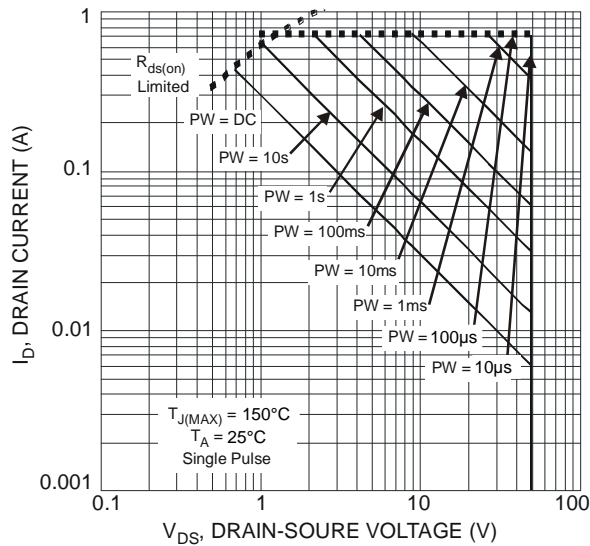


Fig 3 SOA, Safe Operation Area

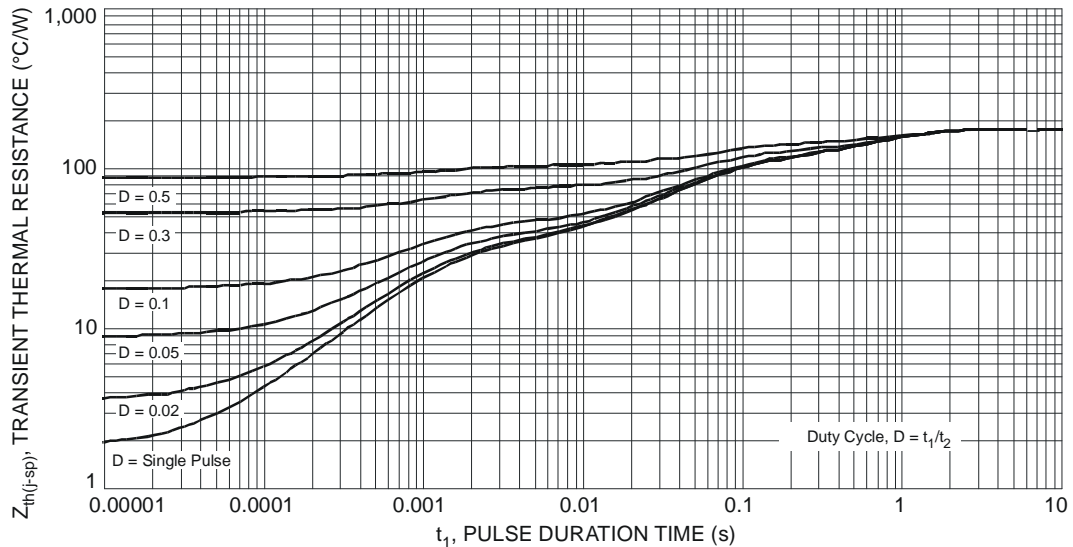


Fig 4 Transient Thermal Response

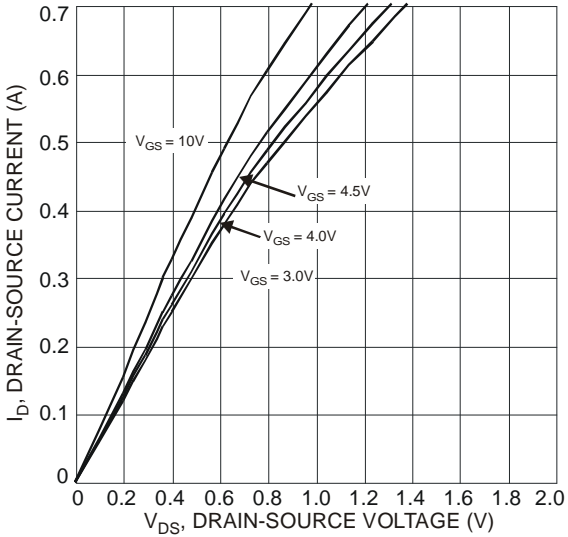


Fig. 5 Drain-Source Current vs. Drain-Source Voltage

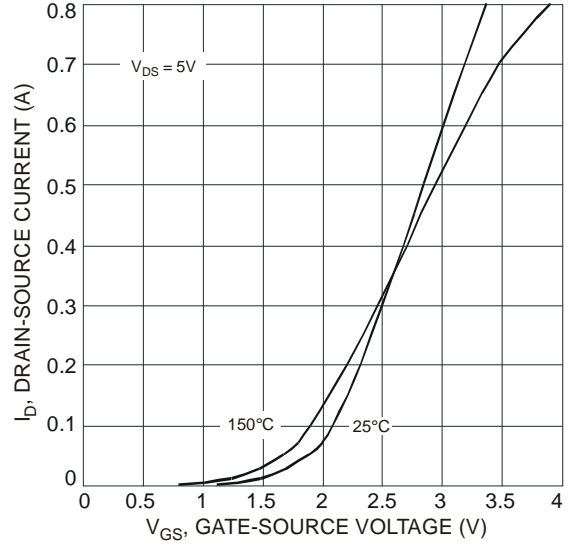


Fig. 6 Transfer Characteristics

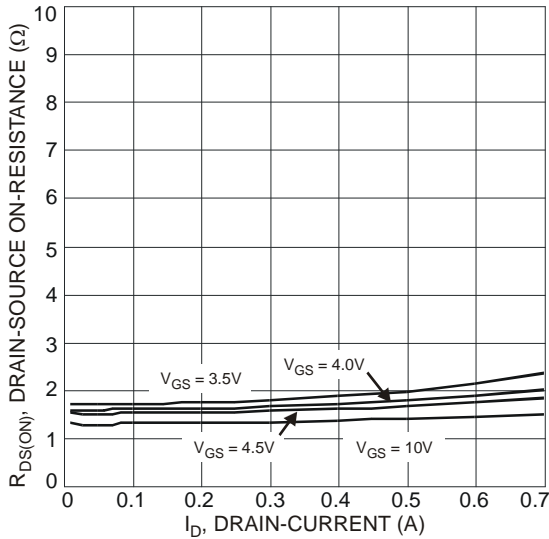


Fig. 7 Drain-Source On-Resistance vs. Drain-Current

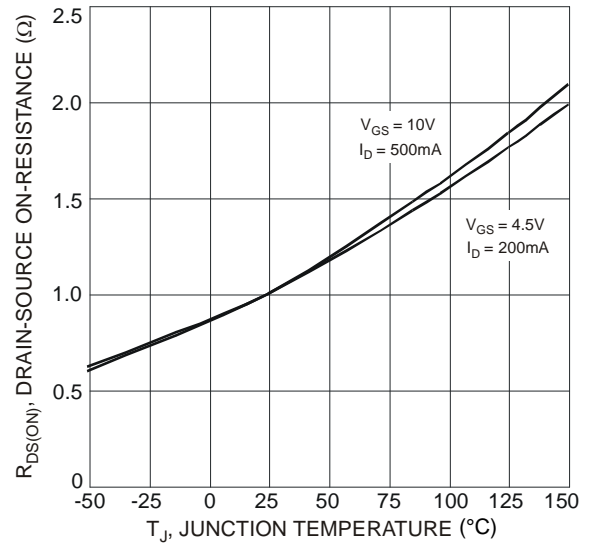


Fig. 8 Drain-Source On-Resistance vs. Junction Temperature

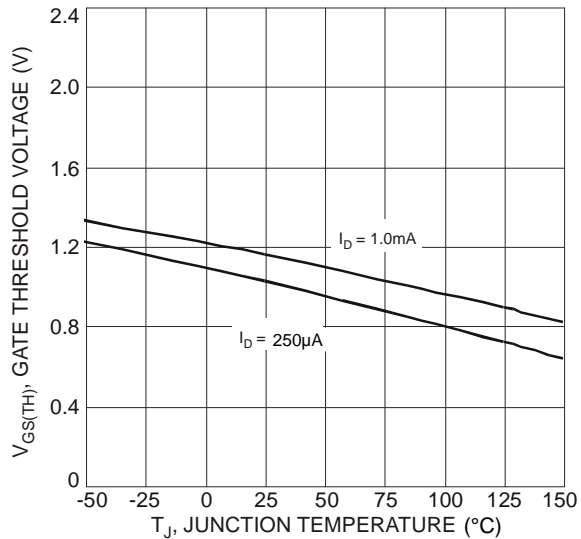


Fig. 9 Gate Threshold Voltage vs. Junction Temperature

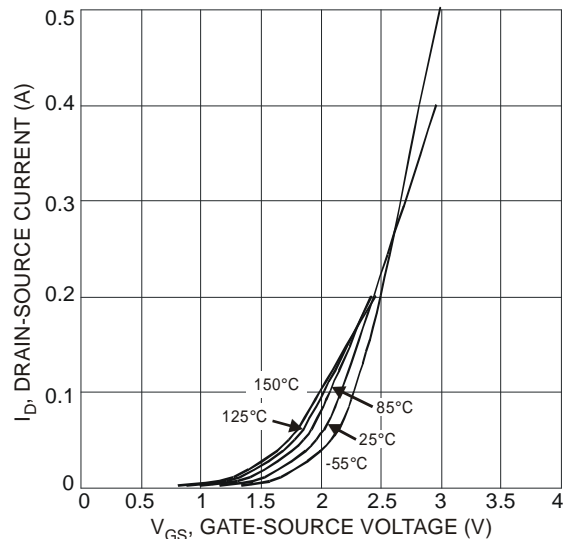


Fig. 10 Transfer Characteristics

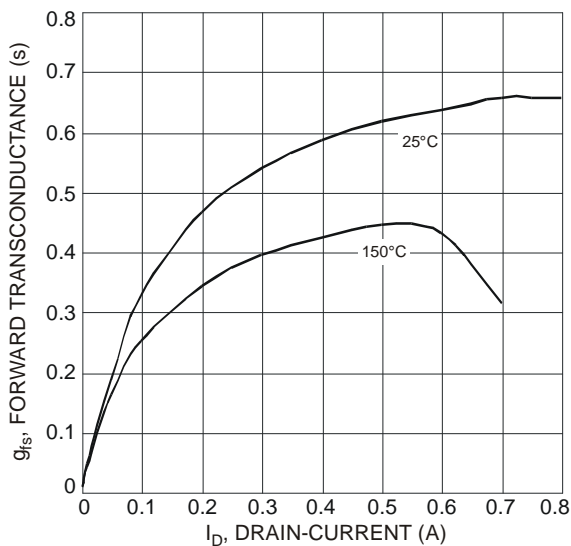


Fig. 11 Typical Transfer Characteristic

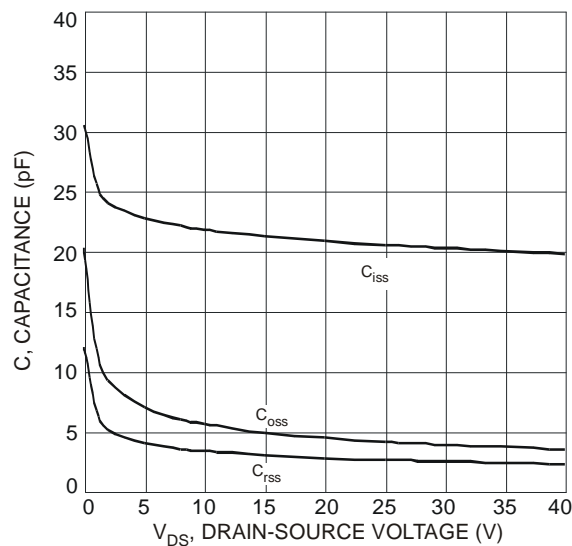


Fig. 12 Capacitance vs. Drain-Source Voltage

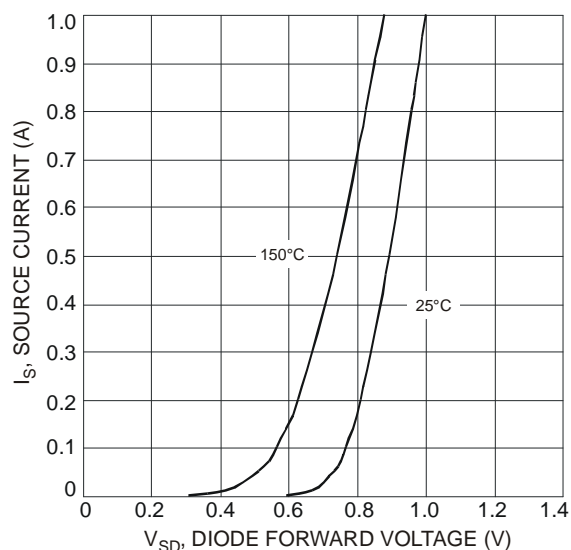
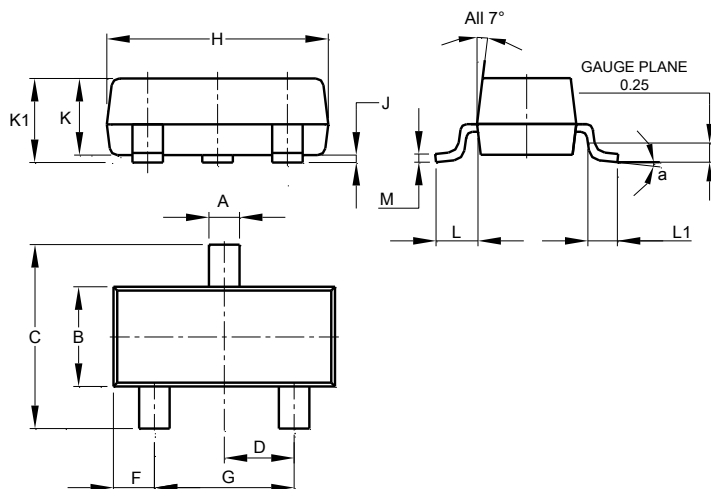


Fig. 13 Source Current vs. Diode Forward Voltage

Package Outline Dimensions

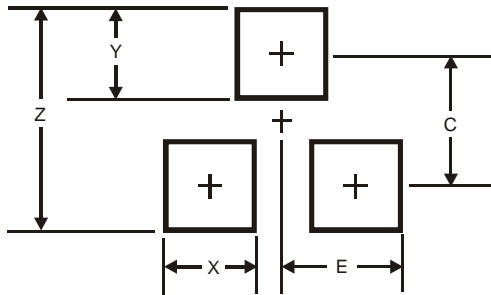
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
α	8°		
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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