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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-12	V
Gate-Source Voltage			V_{GSS}	±8	V
Continuous Drain Current (Note 5) V_{GS} = -4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	4.0 3.1	A
Continuous Drain Current (Note 5) V_{GS} = -2.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	3.3 2.6	A
Continuous Drain Current (Note 6) V_{GS} = -4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	5.2 4.2	A
Continuous Drain Current (Note 6) V_{GS} = -2.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	4.3 3.4	A
Maximum Continuous Body Diode Forward Current (Note 6)			I_S	2	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%) (Note 5)			I_{DM}	40	A

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

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P_D	0.8	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	168	°C/W
Total Power Dissipation (Note 6)	P_D	1.3	W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	99	°C/W
Thermal Resistance, Junction to Case (Note 6)	$R_{\theta JC}$	14.8	°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}	-12	—	—	V	V_{GS} = 0V, I_D = -250µA
Zero Gate Voltage Drain Current (T_J = +25°C)	I_{DSS}	—	—	-1.0	µA	V_{DS} = -12V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±10	µA	V_{GS} = ±8V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	-0.3	-0.55	-1.0	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	26	31	mΩ	V_{GS} = -4.5V, I_D = -4.0A
			31	45		V_{GS} = -2.5V, I_D = -3.5A
			45	75		V_{GS} = -1.8V, I_D = -2.7A
Forward Transfer Admittance	$\|Y_{FS}\|$	—	12	—	S	V_{DS} = -5V, I_D = -4A
Diode Forward Voltage	V_{SD}	—	-0.6	—	V	V_{GS} = 0V, I_S = -1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{ISS}	—	1357	—	pF	V_{DS} = -10V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{OSS}	—	504	—	pF	
Reverse Transfer Capacitance	C_{RSS}	—	235	—	pF	
Gate Resistnace	R_G	—	14.1	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz
SWITCHING CHARACTERISTICS (Note 8)						
Total Gate Charge	Q_G	—	15.8	—	nC	V_{GS} = -4.5V, V_{DS} = -10V, I_D = -4A
Gate-Source Charge	Q_{GS}	—	2.0	—	nC	
Gate-Drain Charge	Q_{GD}	—	3.9	—	nC	
Turn-On Delay Time	$t_{D(ON)}$	—	15.7	—	ns	V_{DS} = -10V, V_{GS} = -4.5V, R_L = 2.5Ω, R_G = 3.0Ω
Turn-On Rise Time	t_R	—	23.3	—	ns	
Turn-Off Delay Time	$t_{D(OFF)}$	—	91.2	—	ns	
Turn-Off Fall Time	t_F	—	106.9	—	ns	

Notes: 5. Device mounted on FR-4 PCB with minimum recommended pad layout, single sided.
6. Device mounted on FR-4 substrate PCB, 2oz copper, with thermal vias to bottom layer 1-inch square copper plate.
7 .Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to production testing.

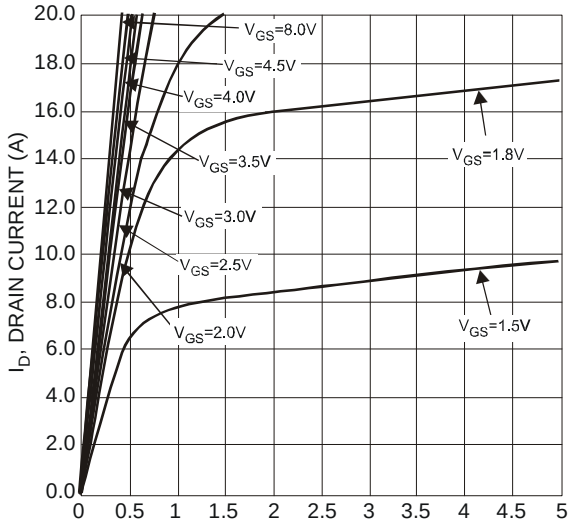


Fig. 1 Typical Output Characteristics

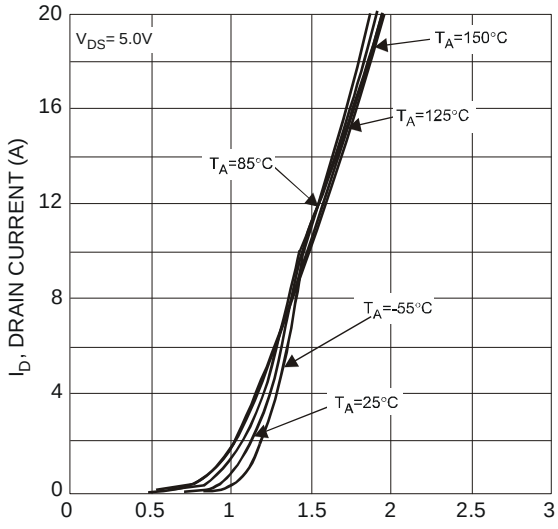


Fig. 2 Typical Transfer Characteristics

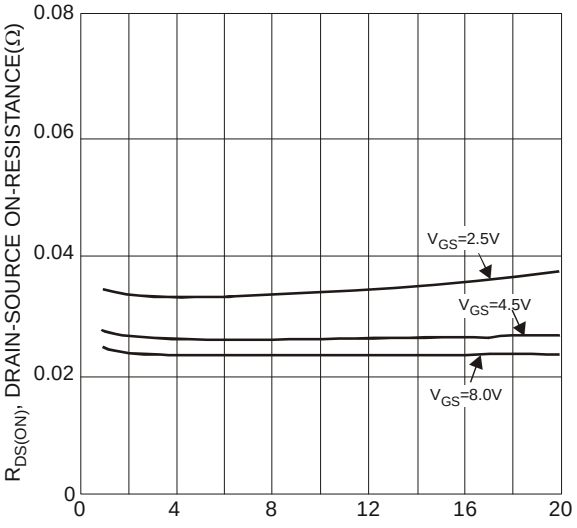


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

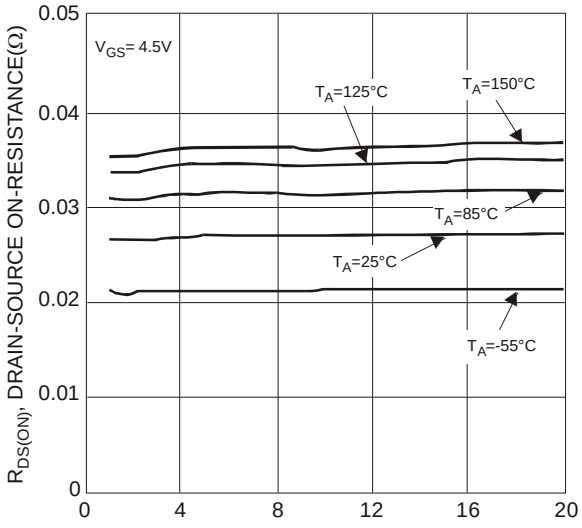


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

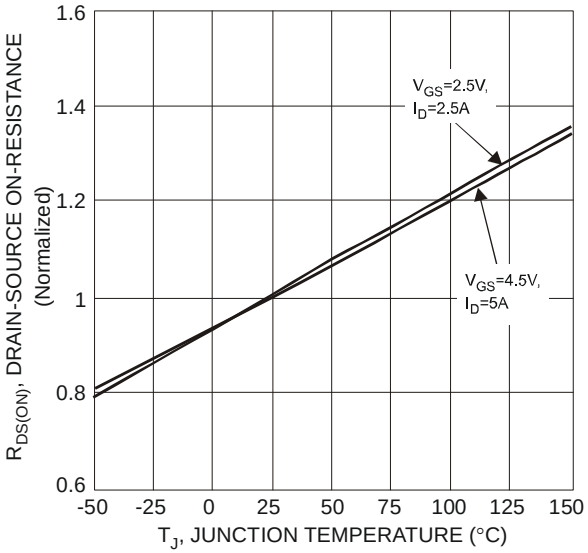


Fig. 5 On-Resistance Variation with Temperature

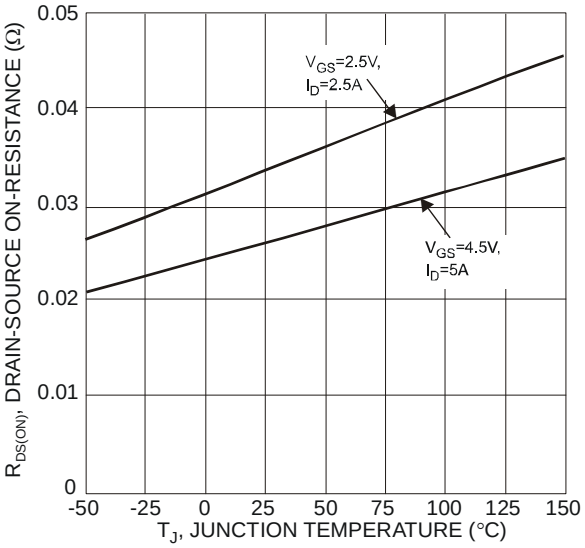


Fig. 6 On-Resistance Variation with Temperature

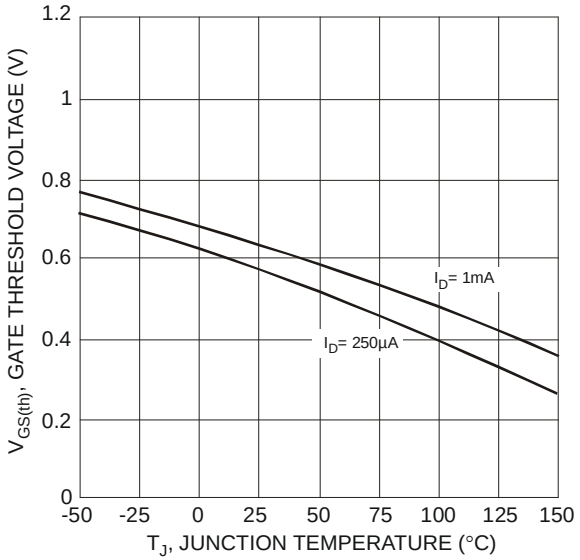


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

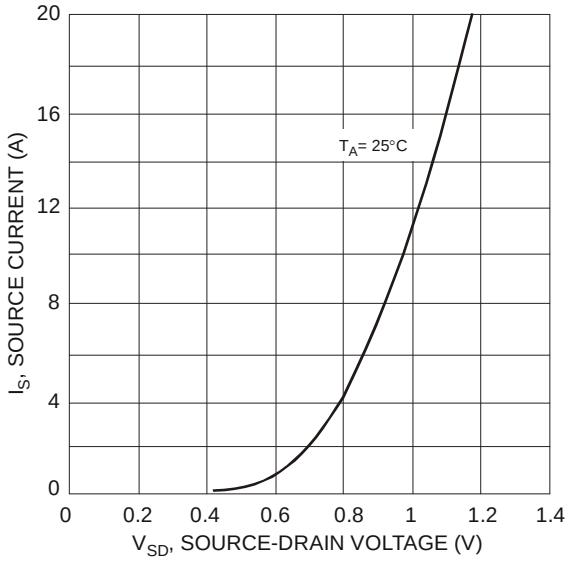


Fig. 8 Diode Forward Voltage vs. Current

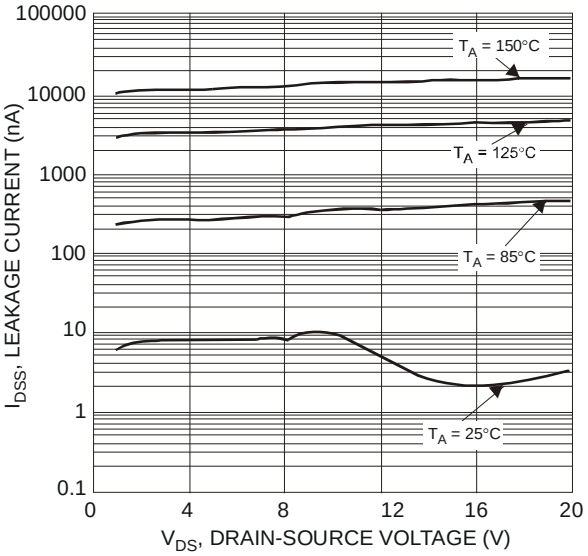


Fig. 9 Typical Drain-Source Leakage Current vs. Voltage

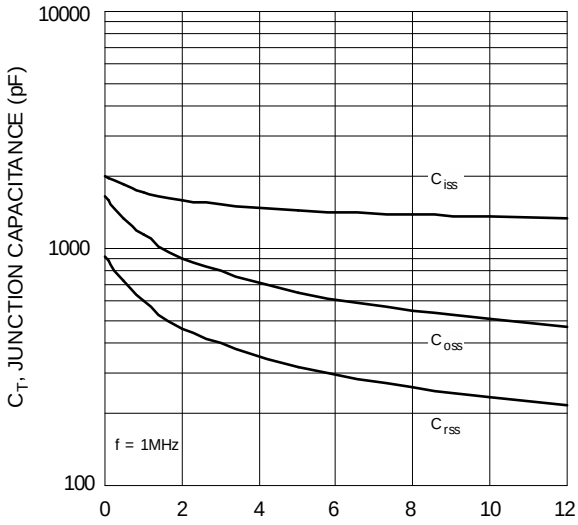


Fig 10 Typical Junction Capacitance

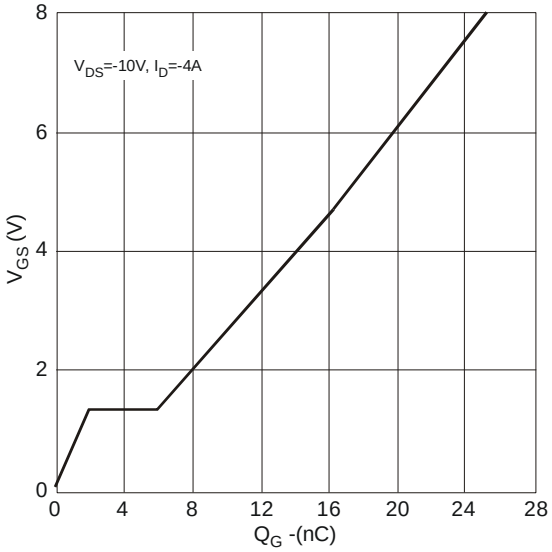


Fig. 11 Gate Charge Characteristics

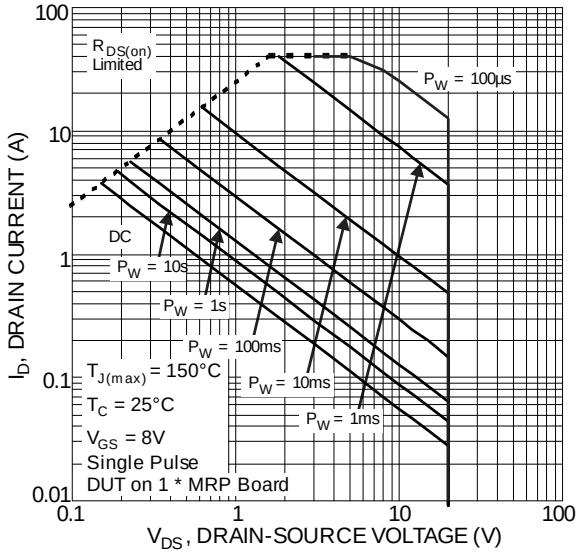


Figure 12 SOA, Safe Operation Area

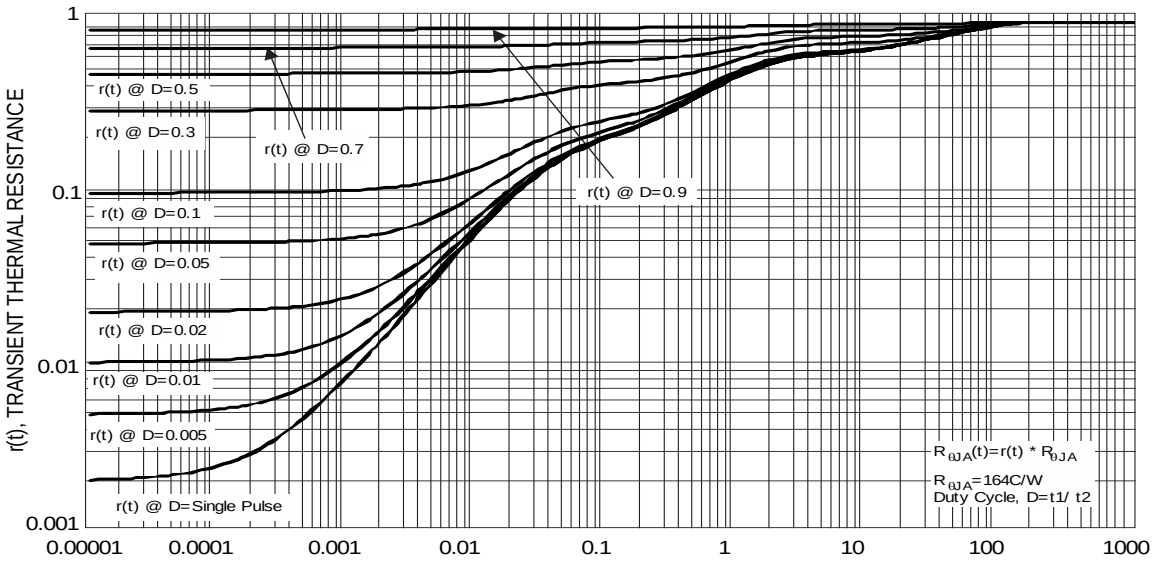
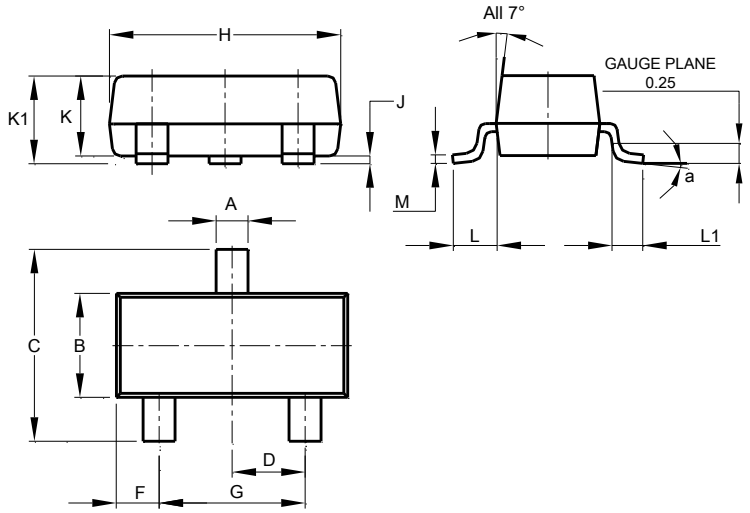


Fig. 13 Transient Thermal Resistance

Package Outline Dimensions

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

SOT23

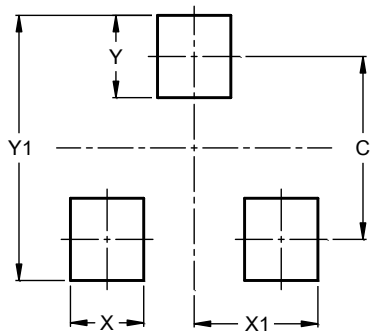


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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