

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	20	V
Gate-Source Voltage			V _{GSS}	±12	V
Continuous Drain Current (Note 6) V _{GS} = 4.5V	Steady State	T _A = +25°C T _A = +70°C	I _D	6.0 4.8	A
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	1.6	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)			I _{DM}	30	A

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)		P _D	0.8	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R _{θJA}	159	°C/W
Total Power Dissipation (Note 6)		P _D	1.36	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R _{θJA}	92	°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}	20	—	—	V	V _{GS} = 0V, I _D = 250µA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	—	—	1.0	µA	V _{DS} = 20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.5	—	1.2	V	V _{DS} = V _{GS} , I _D = 250µA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	21	25	mΩ	V _{GS} = 4.5V, I _D = 8.2A
			26	33		V _{GS} = 2.5V, I _D = 3.3A
Diode Forward Voltage	V _{SD}	—	0.7	1.2	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	667	—	pF	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	91	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	83	—	pF	
Gate Resistance	R _g	—	1.2	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _g	—	7.5	—	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 8.2A
Gate-Source Charge	Q _{gs}	—	0.8	—	nC	
Gate-Drain Charge	Q _{gd}	—	2.5	—	nC	
Turn-On Delay Time	t _{D(ON)}	—	3.9	—	ns	V _{DD} = 10V, V _{GS} = 4.5V, R _L = 10Ω, R _g = 6Ω
Turn-On Rise Time	t _r	—	5.1	—	ns	
Turn-Off Delay Time	t _{D(OFF)}	—	21	—	ns	
Turn-Off Fall Time	t _f	—	9.4	—	ns	I _F = 5.0A, di/dt = 100A/µs
Reverse Recovery Time	t _{RR}	—	12	—	ns	
Reverse Recovery Charge	Q _{RR}	—	3.4	—	nC	I _F = 5.0A, di/dt = 100A/µs

- Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to product testing.

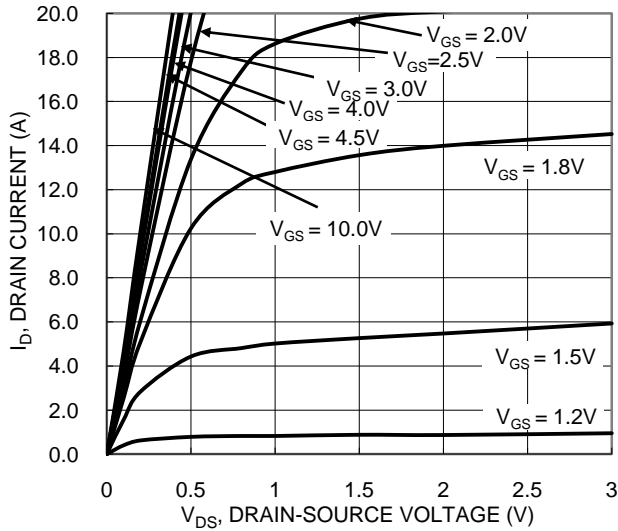


Figure 1. Typical Output Characteristic

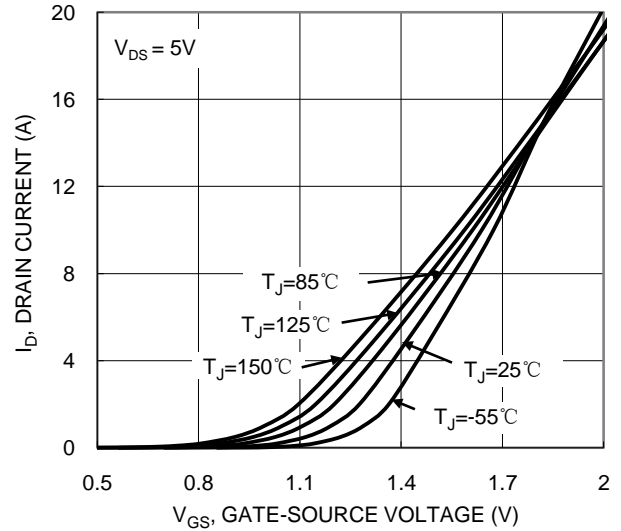


Figure 2. Typical Transfer Characteristic

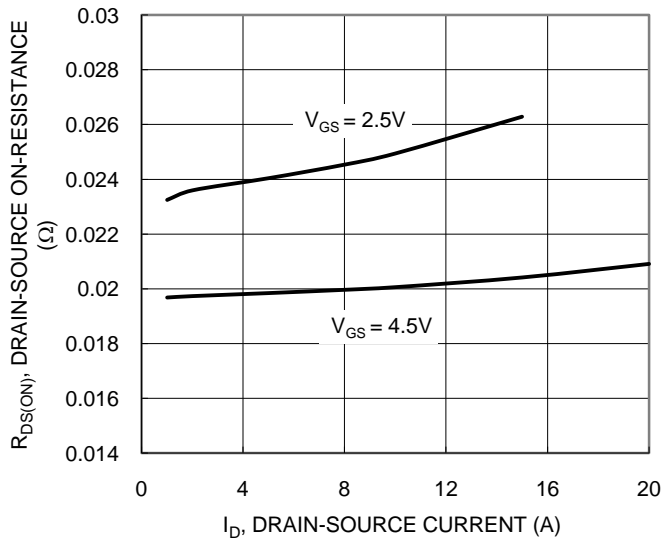


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

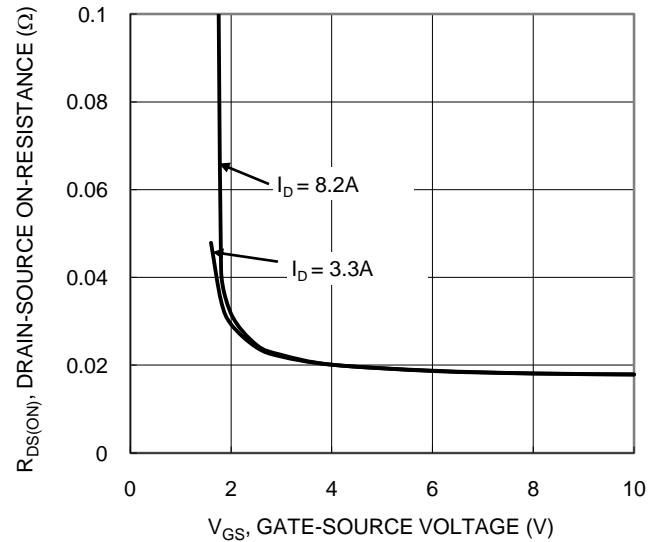


Figure 4. Typical Transfer Characteristic

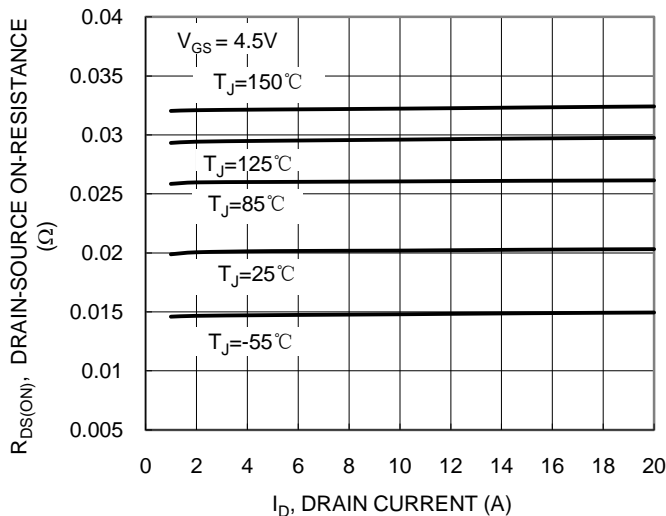


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

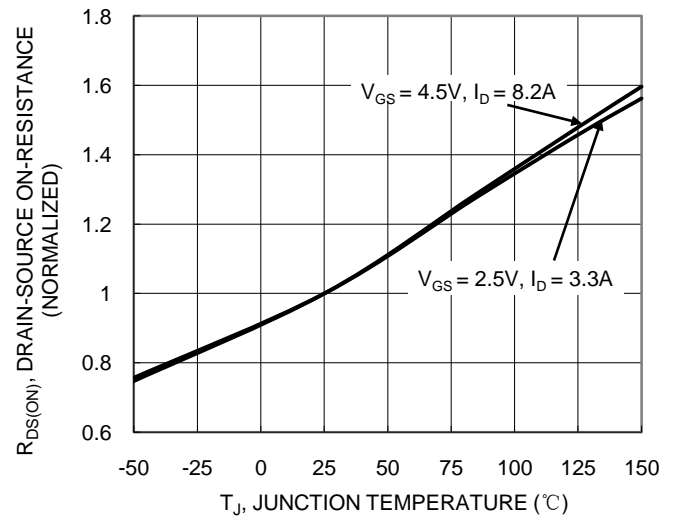
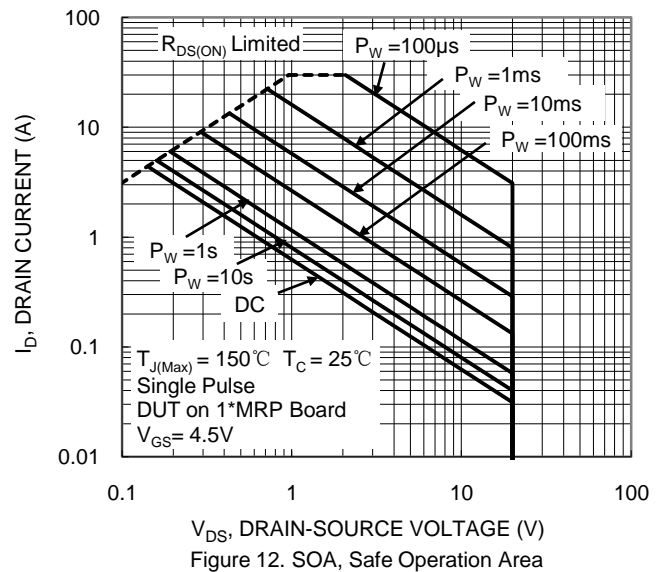
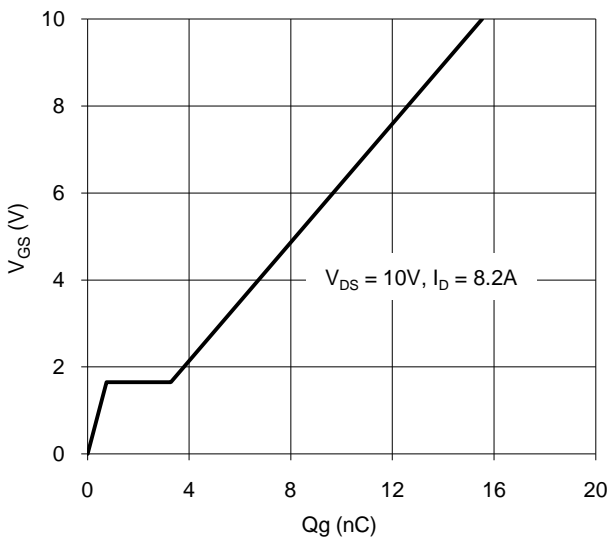
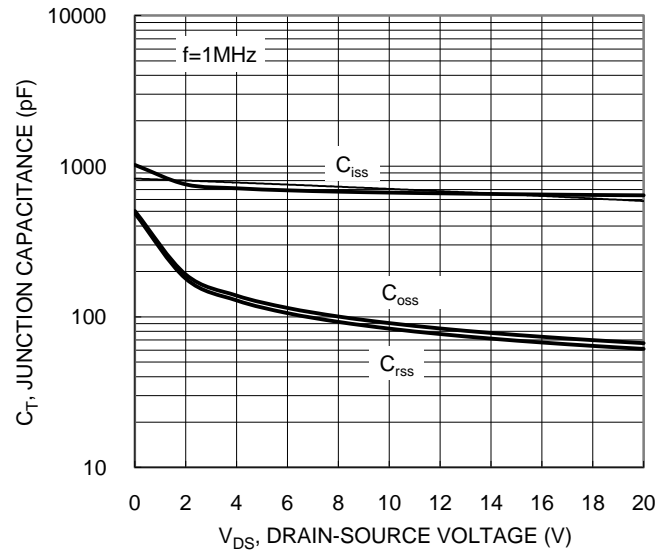
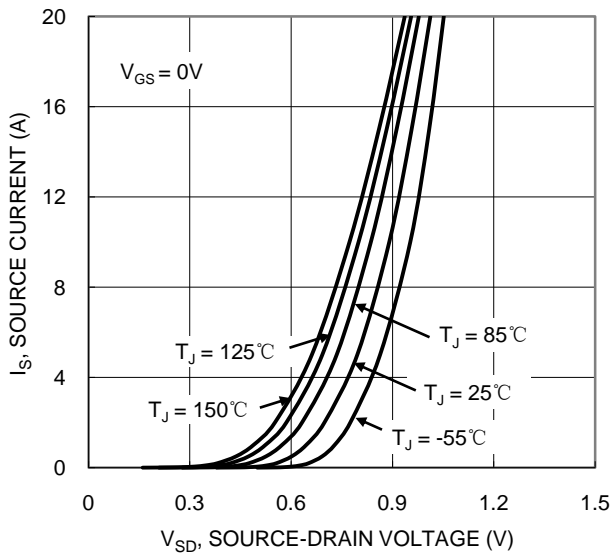
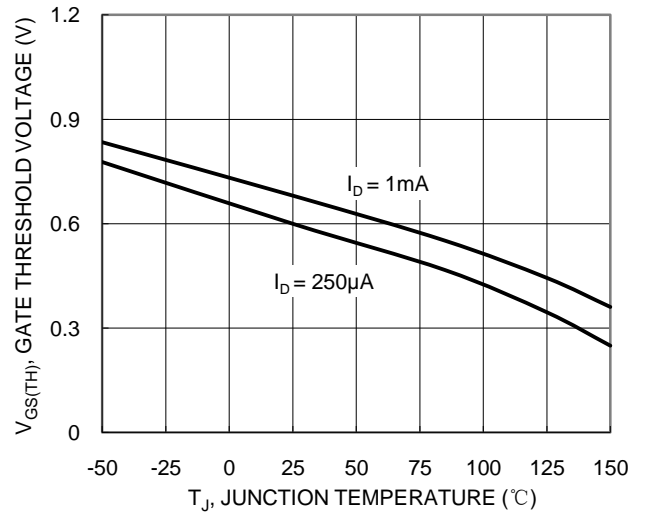
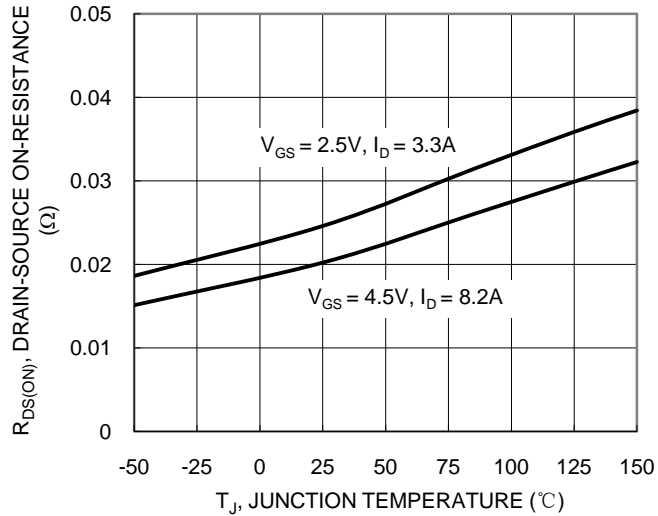


Figure 6. On-Resistance Variation with Junction Temperature



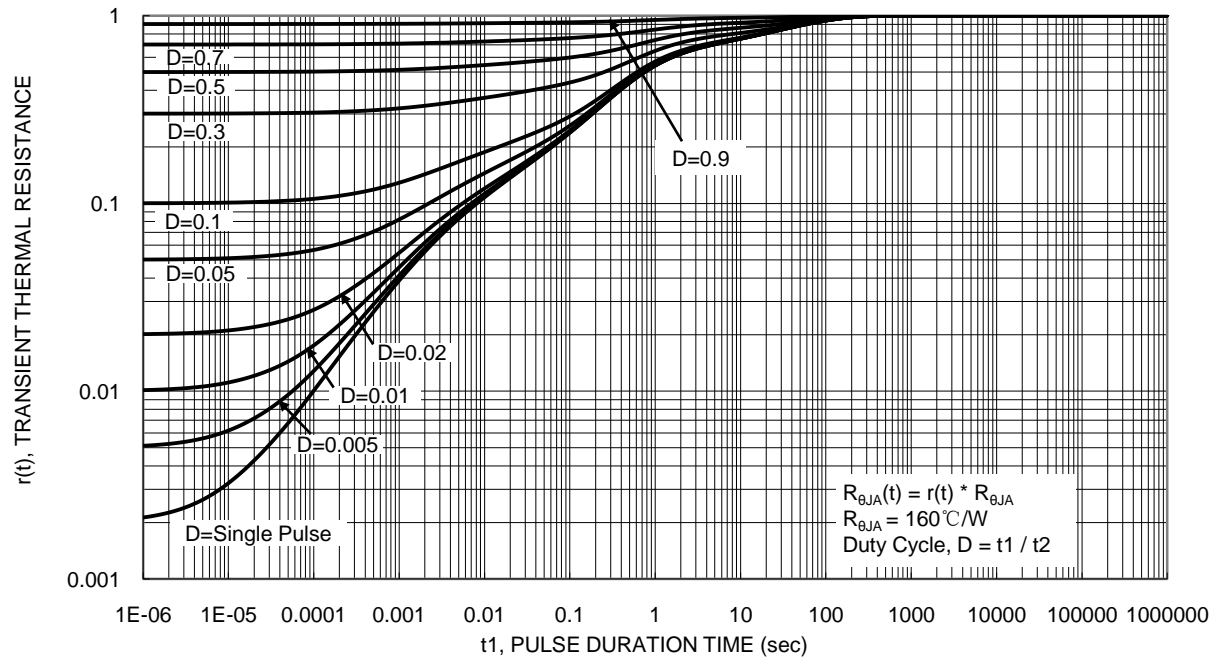
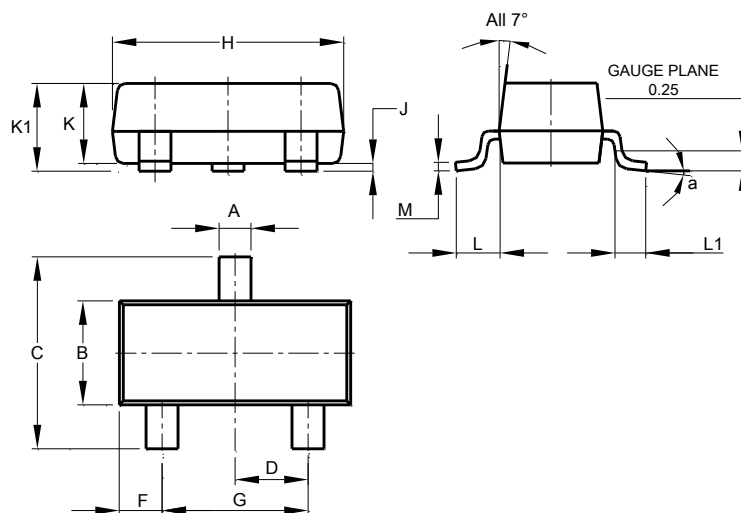


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

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

SOT23

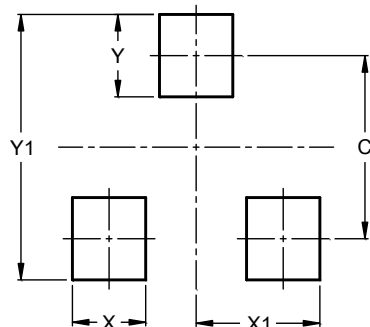


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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