

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	-30	V
Gate-Source Voltage			V _{GSS}	±12	V
Continuous Drain Current (Note 5) V _{GS} = -4.5V	Steady State	T _A = +25°C	I _D	-3.0	A
		T _A = +70°C	I _D	-2.6	A
	t < 10s	T _A = +25°C T _A = +70°C	I _D	-4.1 -3.2	A
Maximum Continuous Body Diode Forward Current (Note 5)			I _S	-1.6	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)			I _{DM}	-20	A

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)	T _A = +25°C	P _D	0.7	W
	T _A = +70°C		0.4	
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R _{θJA}	184	°C/W
	t < 10s		115	
Total Power Dissipation (Note 6)	T _A = +25°C	P _D	1.3	W
	T _A = +70°C		0.8	
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R _{θJA}	94	°C/W
	t < 10s		61	
Thermal Resistance, Junction to Case		R _{θJC}	25	
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}	-30	—	—	V	V _{GS} = 0V, I _D = -250µA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1	µA	V _{DS} = -30V, V _{GS} = 0V
Gate-Body Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	-0.6	—	-1.3	V	V _{DS} = V _{GS} , I _D = -250µA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	59	77	mΩ	V _{GS} = -10V, I _D = -4.2A
		—	73	95		V _{GS} = -4.5V, I _D = -4A
		—	115	150		V _{GS} = -2.5V, I _D = -3A
		—	—	—		V _{DS} = -5V, I _D = -4A
Forward Transconductance	g _{fs}	—	8	—	S	V _{DS} = -5V, I _D = -4A
Source-Drain Diode Forward Voltage	V _{SD}	—	-0.8	-1.25	V	V _{GS} = 0V, I _S = -3.0A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	432	864	pF	V _{DS} = -15V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	87	174	pF	
Reverse Transfer Capacitance	C _{rss}	—	62	124	pF	
Gate Resistance	R _G	—	4.04	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz
SWITCHING CHARACTERISTICS (Note 8)						
Total Gate Charge	Q _G	—	5.9	11.8	nC	V _{DS} = -15V, V _{GS} = -4.5V, I _D = -4.0A
		—	12	24		V _{DS} = -15V, V _{GS} = -10V, I _D = -4.0A
Gate-Source Charge	Q _{GS}	—	1.0	2.0		V _{DS} = -15V, V _{GS} = -4.5V, I _D = -4.0A
Gate-Drain Charge	Q _{GD}	—	3.1	6.2	ns	V _{DS} = -15V, V _{GS} = -10V, I _D = -1A, R _G = 6.0Ω
Turn-On Delay Time	t _{D(ON)}	—	4.6	9.2		
Rise Time	t _r	—	6.5	13.0		
Turn-Off Delay Time	t _{D(OFF)}	—	27.8	55.6		
Fall Time	t _f	—	15.0	30.0		

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

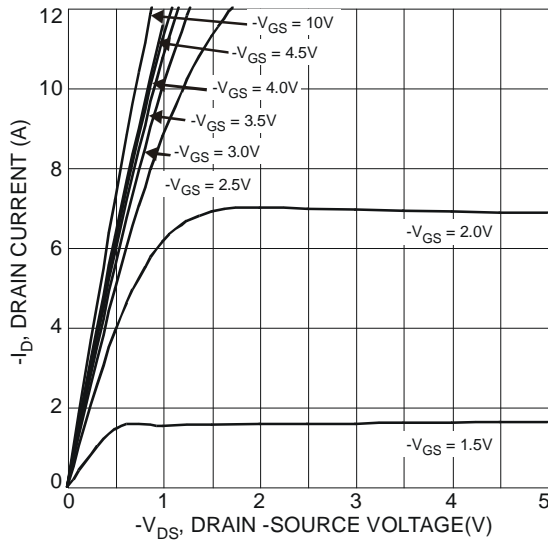


Fig. 1 Typical Output Characteristics

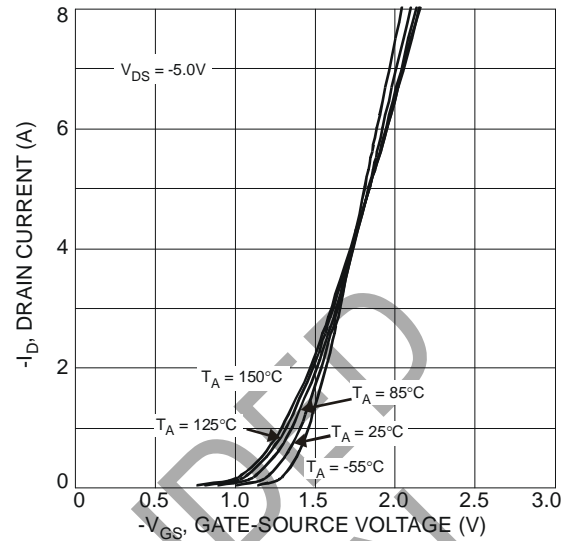


Fig. 2 Typical Transfer Characteristics

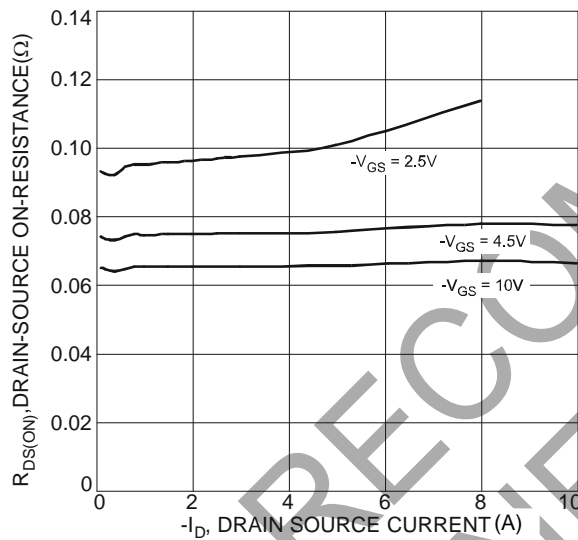


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

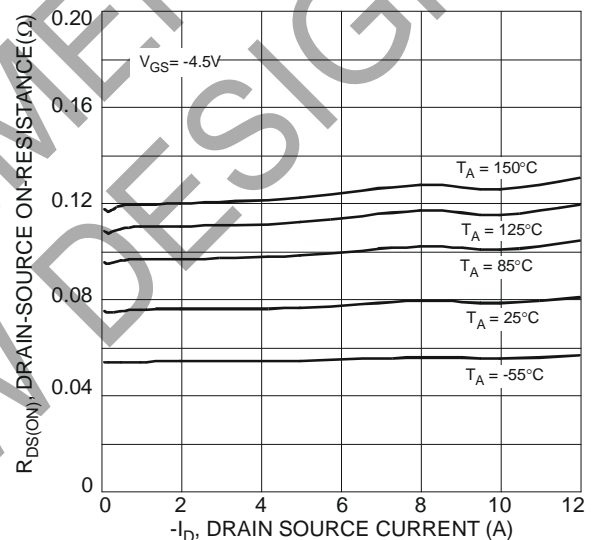


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

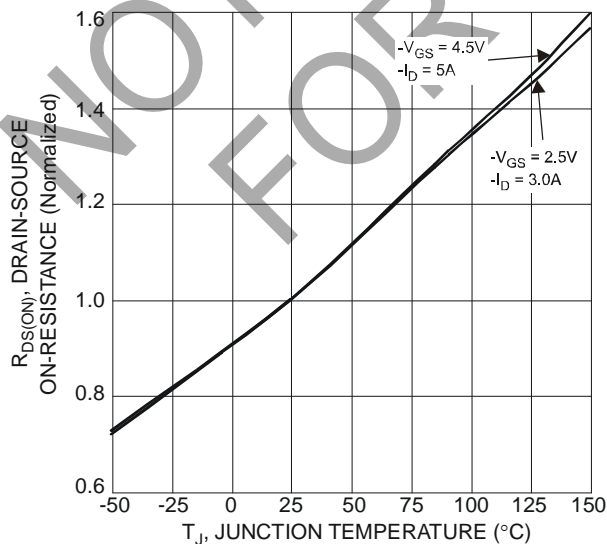


Fig. 5 On-Resistance Variation with Temperature

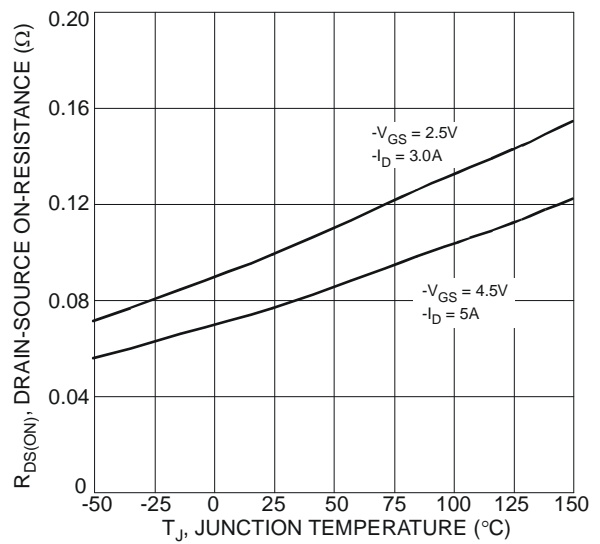


Fig. 6 On-Resistance Variation with Temperature

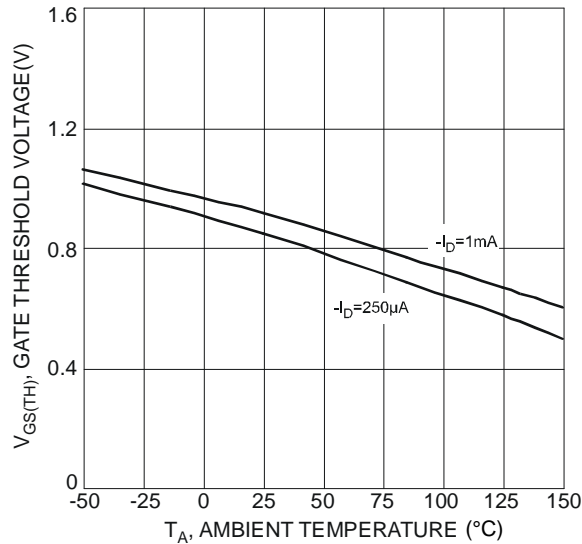


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

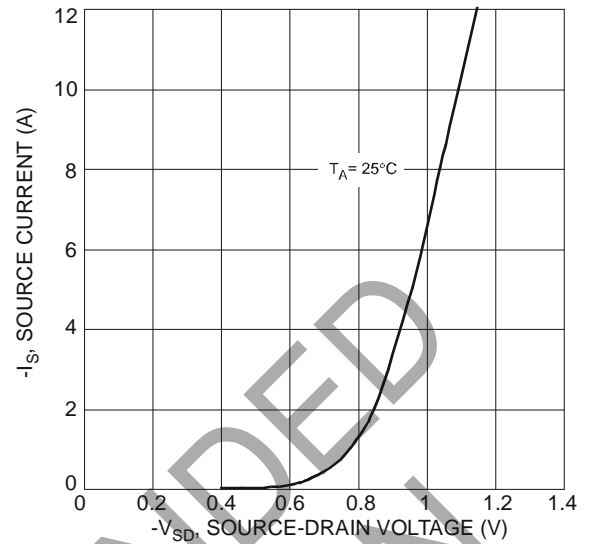


Fig. 8 Diode Forward Voltage vs. Current

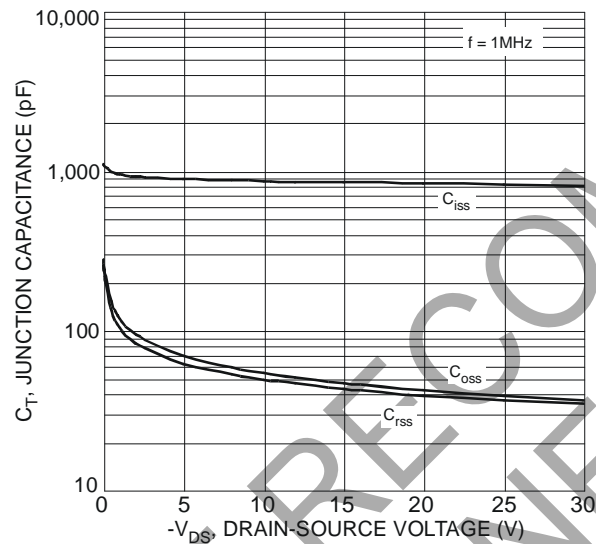


Fig. 9 Typical Junction Capacitance

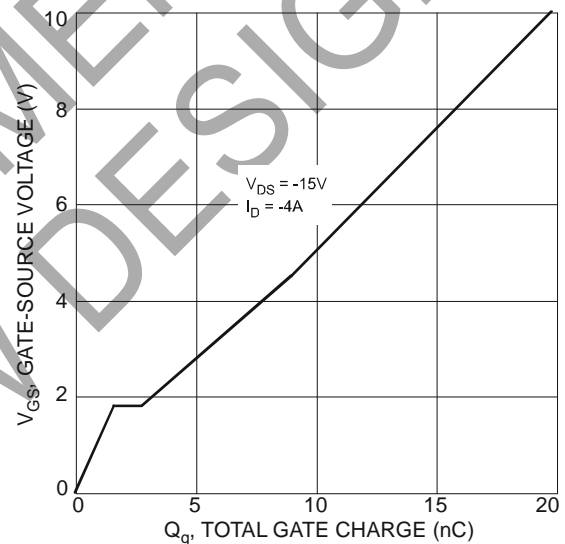


Fig. 10 Gate-Charge Characteristics

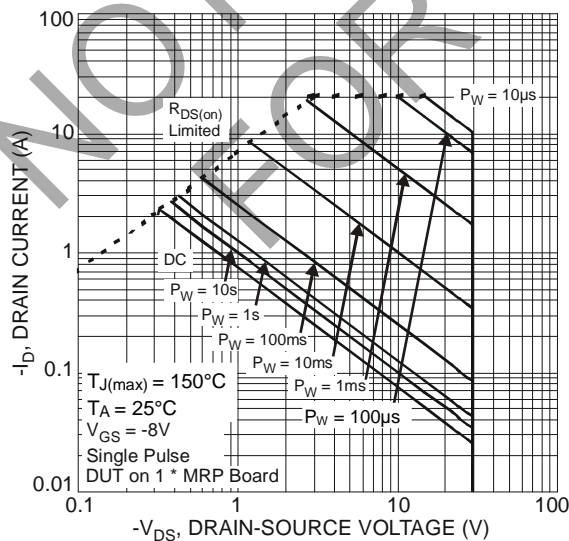
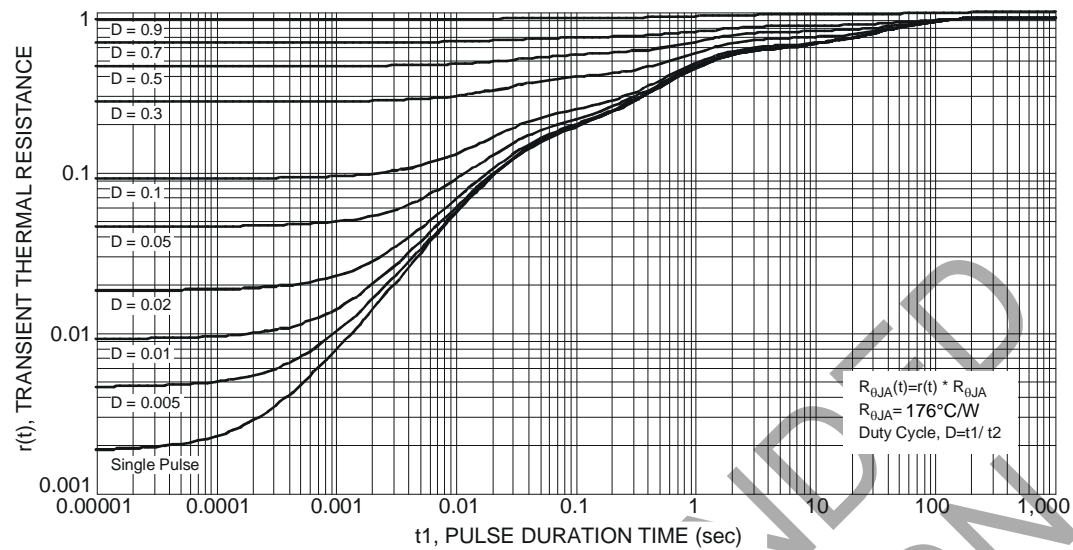


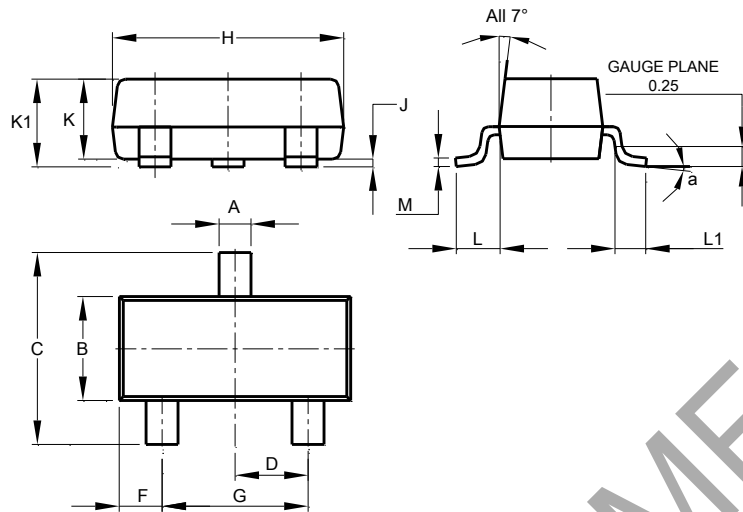
Fig. 11 SOA, Safe Operation Area



Package Outline Dimensions

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

SOT23

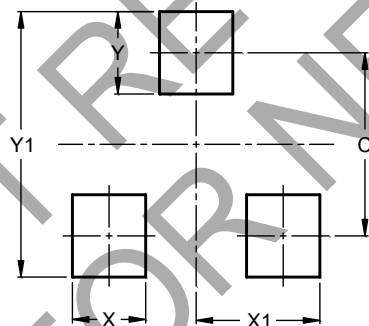


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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