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}	±10	V
Continuous Drain Current (Note 8) V_{GS} = -4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	-4.9 -4.0	A
Pulsed Drain Current (Note 8)			I_{DM}	-24	A
Maximum Continuous Body Diode Forward Current (Note 7)			I_S	-1.2	A
Pulsed Body Diode Forward Current (Note 10)			I_{SM}	-24	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 6)	P_D	0.81	W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	153.5	°C/W
Total Power Dissipation (Note 7)	P_D	1.2	W
Thermal Resistance, Junction to Ambient (Note 7)	$R_{\theta JA}$	100	°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 9)						
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}	—	—	±10	µA	V_{GS} = ±8V, V_{DS} = 0V
ON CHARACTERISTICS (Note 9)						
Gate Threshold Voltage	$V_{GS(TH)}$	-0.4	-0.7	-1.0	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	23 30 41	35 45 62	mΩ	V_{GS} = -4.5V, I_D = -4.0A V_{GS} = -2.5V, I_D = -4.0A V_{GS} = -1.8V, I_D = -2.0A
Forward Transfer Admittance	$\|Y_{FS}\|$	—	14	—	s	V_{DS} = -5V, I_D = -4A
Diode Forward Voltage	V_{SD}	—	-0.7	-1.0	V	V_{GS} = 0V, I_S = -1A
DYNAMIC CHARACTERISTICS (Note 10)						
Input Capacitance	C_{iss}	—	1,610	—	pF	V_{DS} = -10V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	157	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	145	—	pF	
Gate Resistance	R_g	—	9.45	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge	Q_g	—	15.4	—	nC	V_{GS} = -4.5V, V_{DS} = -10V, I_D = -4A
Gate-Source Charge	Q_{gs}	—	2.5	—	nC	
Gate-Drain Charge	Q_{gd}	—	3.3	—	nC	
Turn-On Delay Time	$t_{D(ON)}$	—	16.8	—	ns	V_{DS} = -10V, V_{GS} = -4.5V, R_L = 10Ω, R_g = 6.0Ω, I_D = -1A
Turn-On Rise Time	t_R	—	12.4	—	ns	
Turn-Off Delay Time	$t_{D(OFF)}$	—	94.1	—	ns	
Turn-Off Fall Time	t_F	—	42.4	—	ns	

Notes:
6. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
7. Device mounted on FR-4 substrate PC board, 2oz copper, with 25mm X 25mm square copper plate.
8. Repetitive rating, pulse width limited by junction temperature.
9. Short duration pulse test used to minimize self-heating effect.
10. Guaranteed by design. Not subject to product testing.

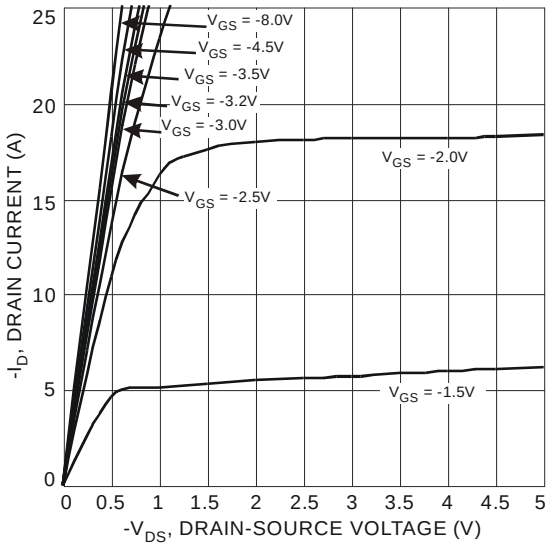


Fig. 1 Typical Output Characteristic

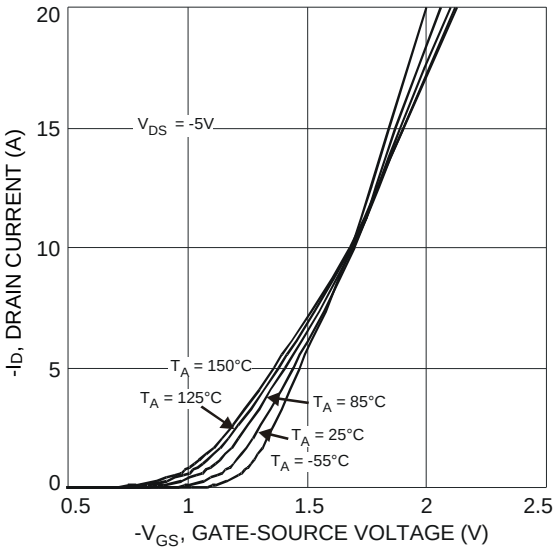


Fig. 2 Typical Transfer Characteristic

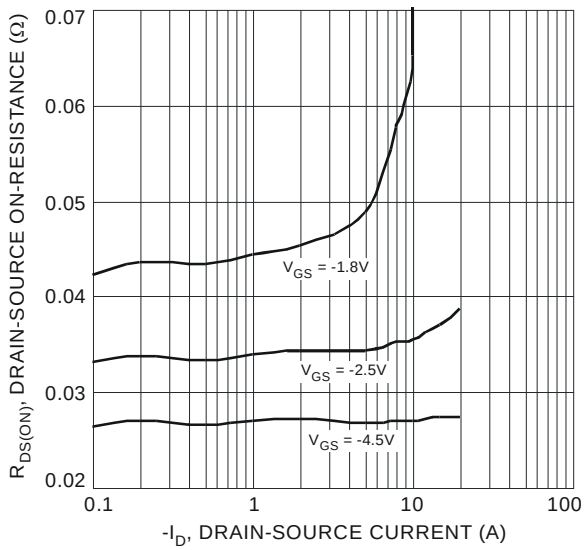


Fig. 3 Typical On-Resistance
vs. Drain Current and Gate Voltage

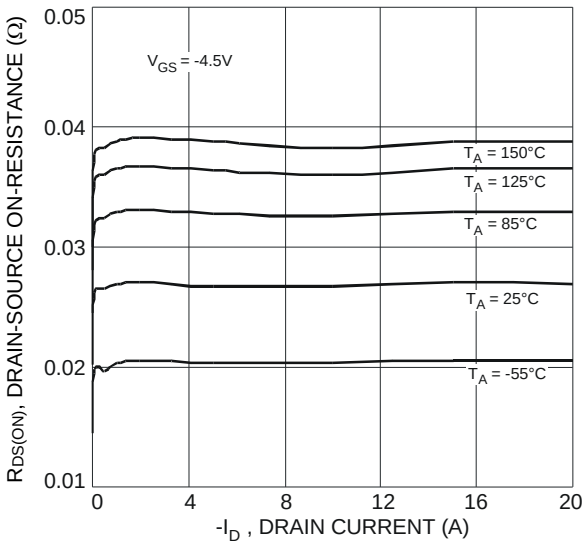


Fig. 4 Typical On-Resistance
vs. Drain Current and Temperature

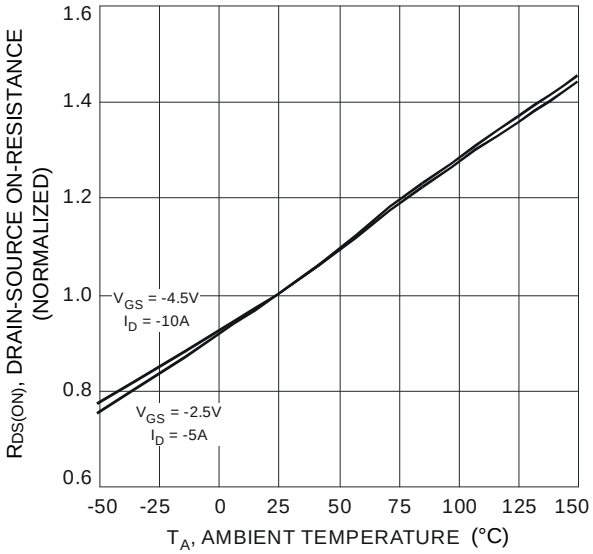


Fig. 5 On-Resistance Variation with Temperature

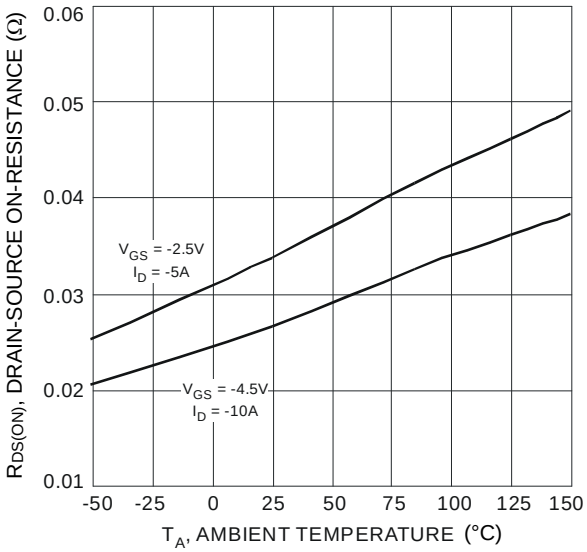


Fig. 6 On-Resistance Variation with Temperature

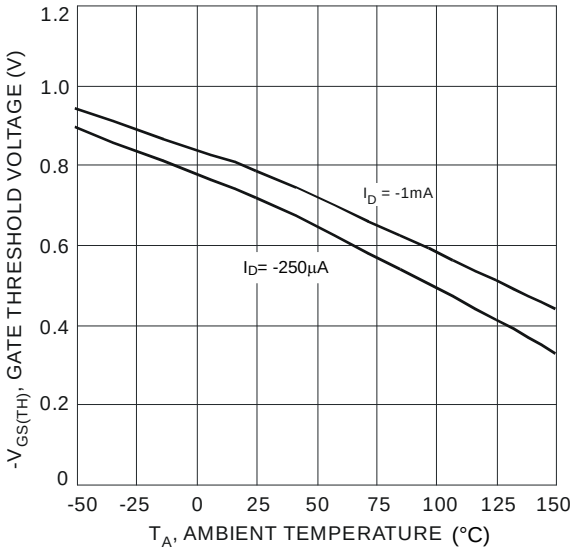


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

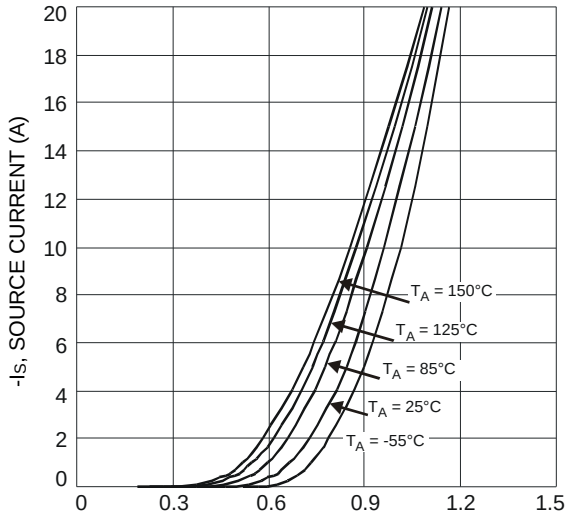


Fig. 8 Diode Forward Voltage vs. Current

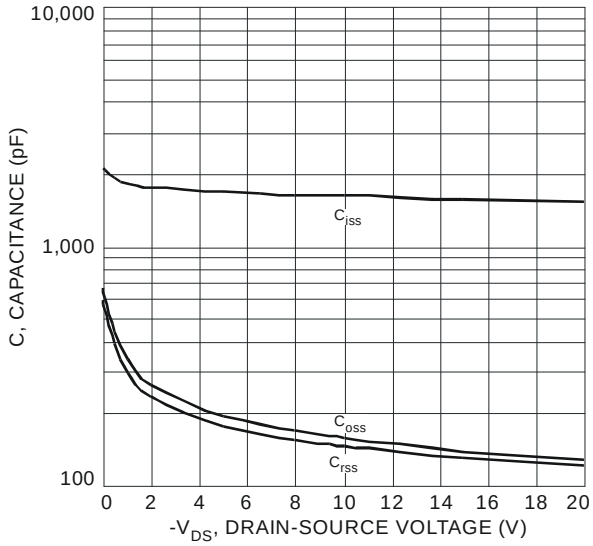


Fig. 9 Typical Total Capacitance

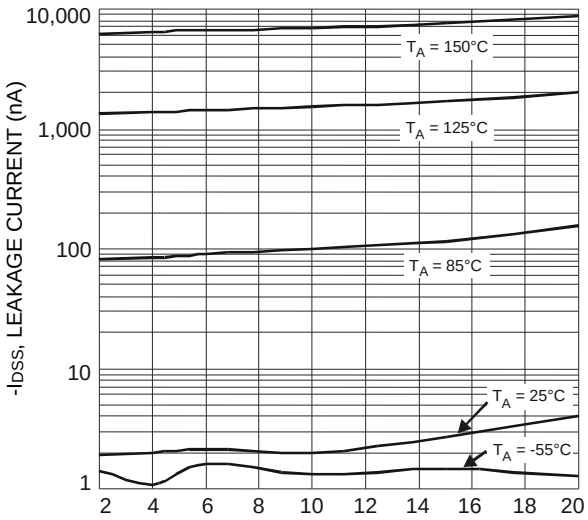


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

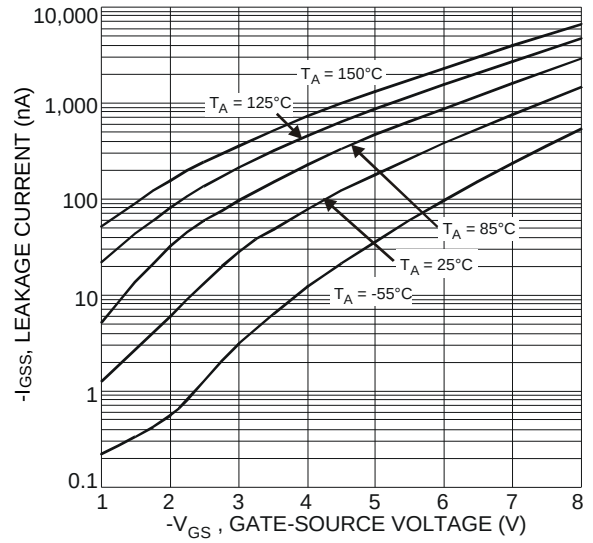


Fig. 11 Gate-Source Leakage Current vs. Voltage

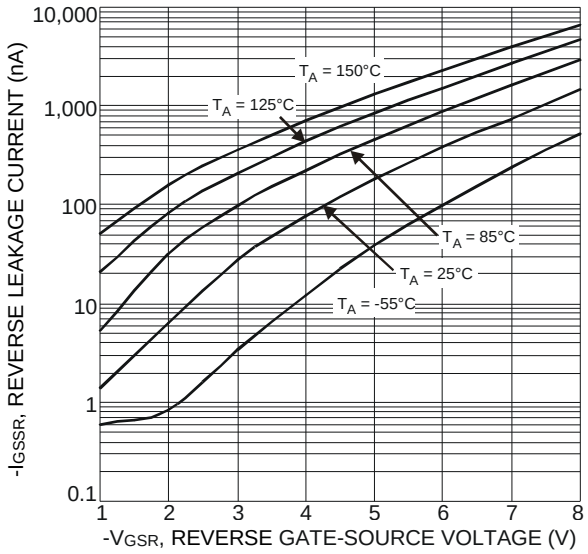


Fig. 12 Reverse Gate-Source Leakage Current vs. Voltage

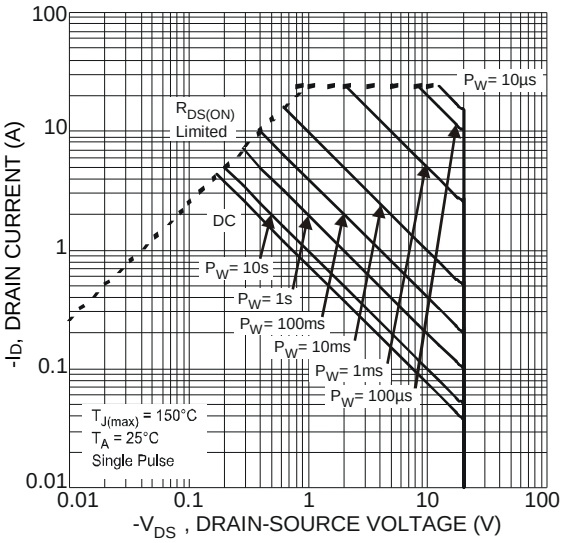


Fig. 13 SOA, Safe Operation Area

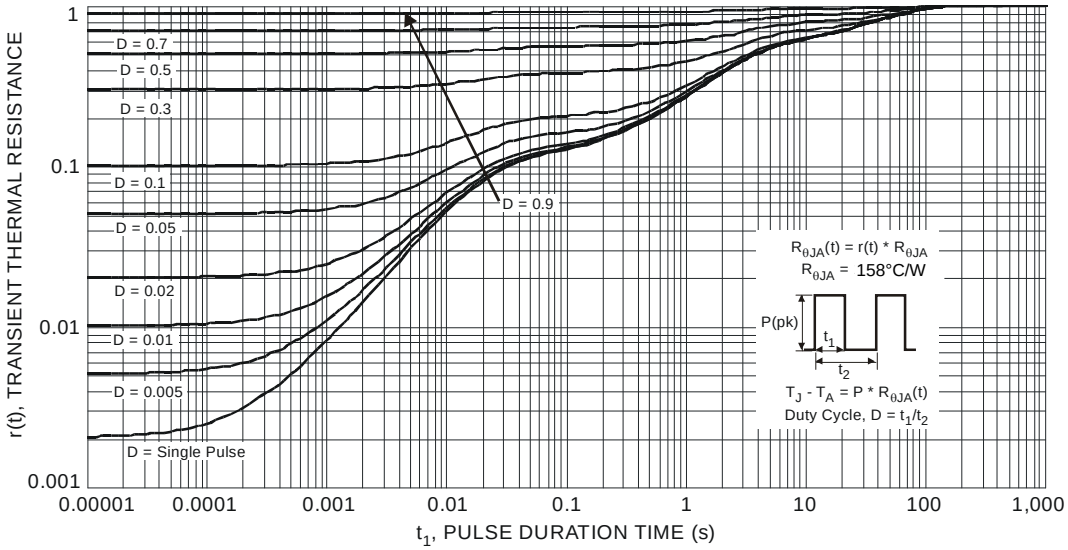
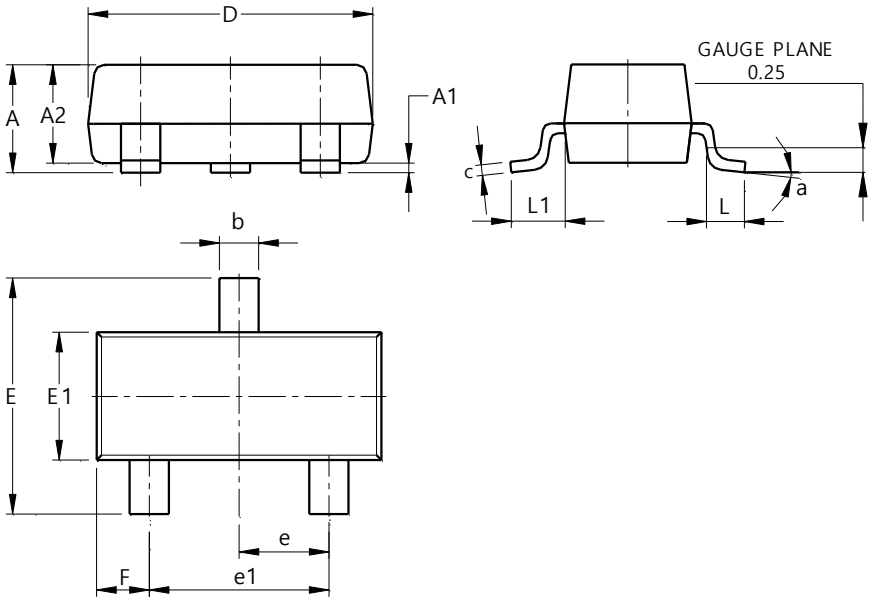


Fig. 14 Transient Thermal Response

Package Outline Dimensions

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

SOT23 (Standard)



SOT23 (Standard)			
Dim	**Min**	**Max**	**Typ**
A	0.90	1.15	1.025
A1	0.00	0.10	0.05
A2	0.85	1.10	0.975
b	0.30	0.51	0.40
c	0.080	0.202	0.11
D	2.80	3.00	2.90
E	2.25	2.55	2.40
E1	1.20	1.40	1.30
e	0.89	1.03	0.915
e1	1.78	2.05	1.83
F	0.40	0.60	0.535
L1	0.45	0.61	0.55
L	0.25	0.55	0.40
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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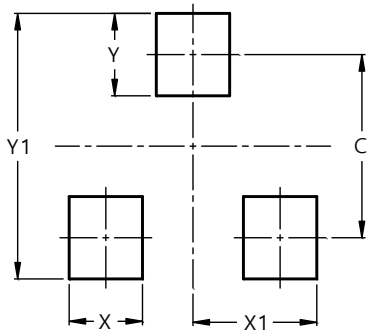
SOT23 (Standard)



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

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