

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}	±8	V	
Continuous Drain Current (Note 5)	Steady State	T _A = +25°C	I _D	4.2	A	
		T _A = +70°C		3.4		
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	1.2	A	
Pulsed Drain Current (Note 6)			I _{DM}	27	A	
Pulsed Body Diode Forward Current (Note 6)			I _{SM}	24	A	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	0.8	W
Thermal Resistance, Junction to Ambient @T _A = +25°C	R _{θJA}	156	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes: 5. Device mounted on FR-4 PCB, with minimum recommended pad layout.
6. Repetitive rating, pulse width limited by junction temperature.

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}	—	—	100	nA	V _{DS} = 16V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±8V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.4	—	1.0	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	25	38	mΩ	V _{GS} = 4.5V, I _D = 3.6A
			30	45		V _{GS} = 2.5V, I _D = 3.1A
Forward Transfer Admittance	Y _{FS}	—	13	—	S	V _{DS} = 5V, I _D = 3.6A
Diode Forward Voltage	V _{SD}	—	0.75	1.0	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{ISS}	—	594.3	—	pF	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{OSS}	—	64.5	—	pF	
Reverse Transfer Capacitance	C _{RSS}	—	57.7	—	pF	
Gate Resistance	R _g	—	1.5	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _G	—	7.0	—	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 3.6A
Gate-Source Charge	Q _{GS}	—	0.9	—	nC	
Gate-Drain Charge	Q _{GD}	—	1.4	—	nC	
Turn-On Delay Time	t _{D(ON)}	—	7.4	—	ns	V _{DD} = 10V, V _{GS} = 4.5V, R _L = 2.78Ω, R _g = 1.0Ω
Turn-On Rise Time	t _R	—	9.8	—	ns	
Turn-Off Delay Time	t _{D(OFF)}	—	28.1	—	ns	
Turn-Off Fall Time	t _F	—	6.7	—	ns	

Notes: 7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to production testing.

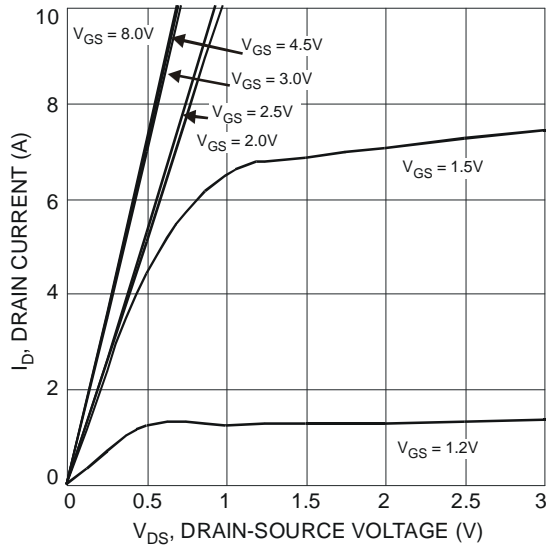


Fig. 1 Typical Output Characteristics

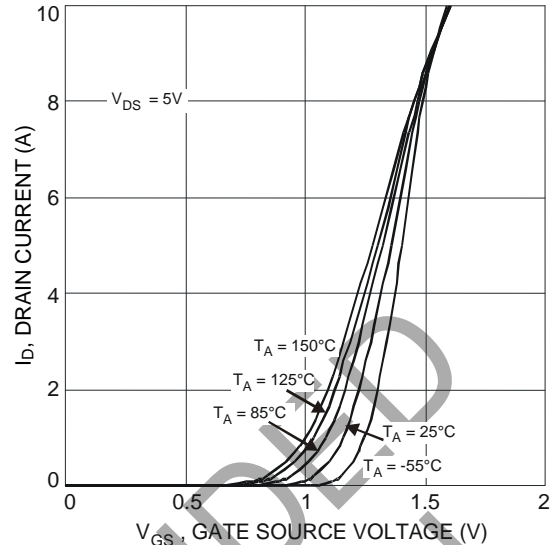


Fig. 2 Typical Transfer Characteristics

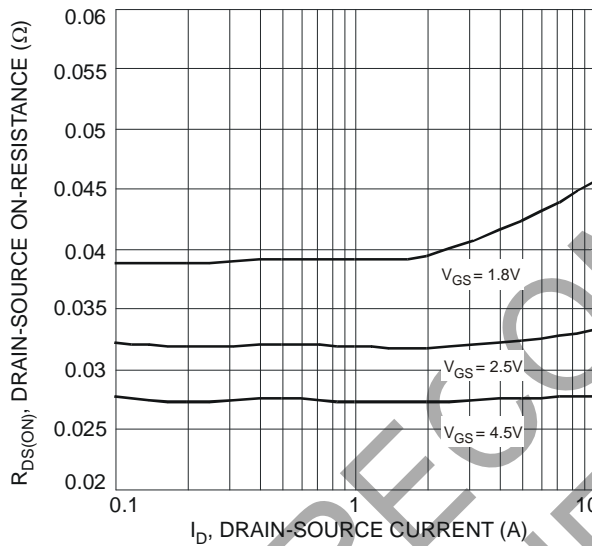


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

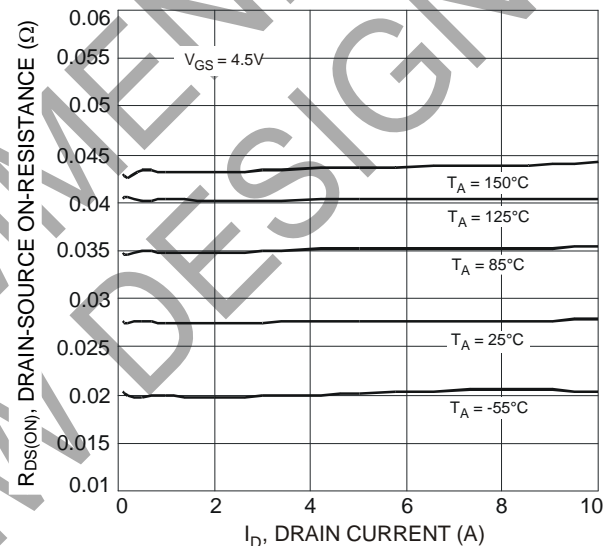


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

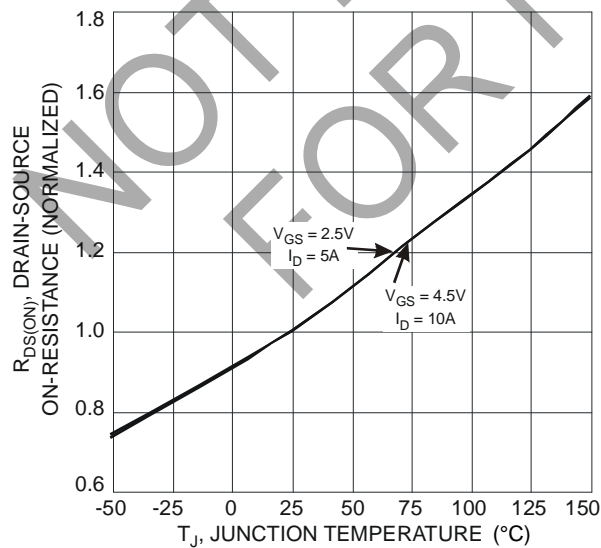


Fig. 5 On-Resistance Variation with Temperature

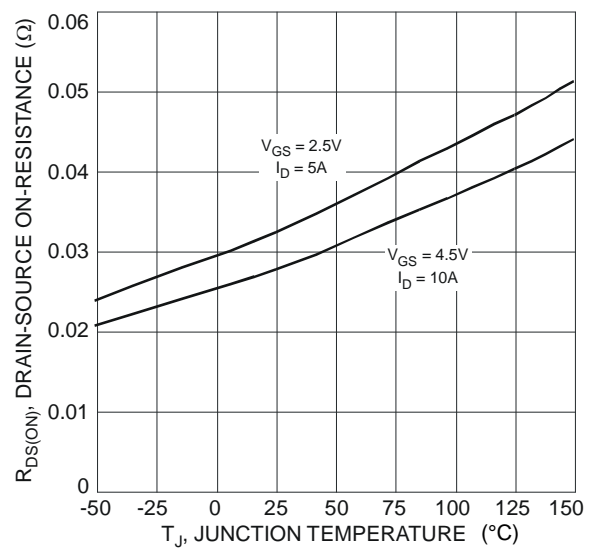


Fig. 6 On-Resistance Variation with Temperature

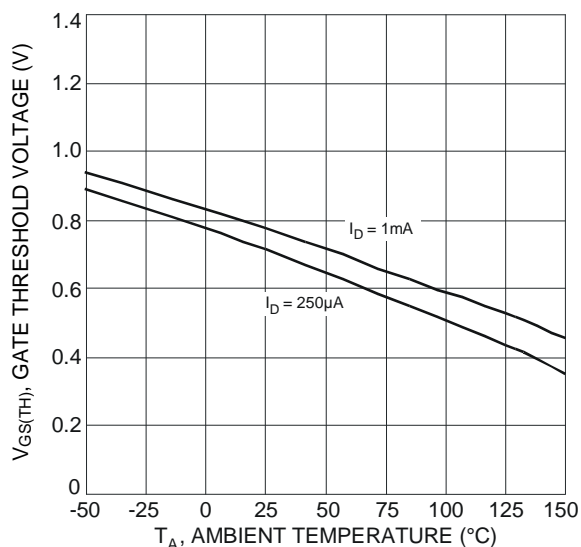


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

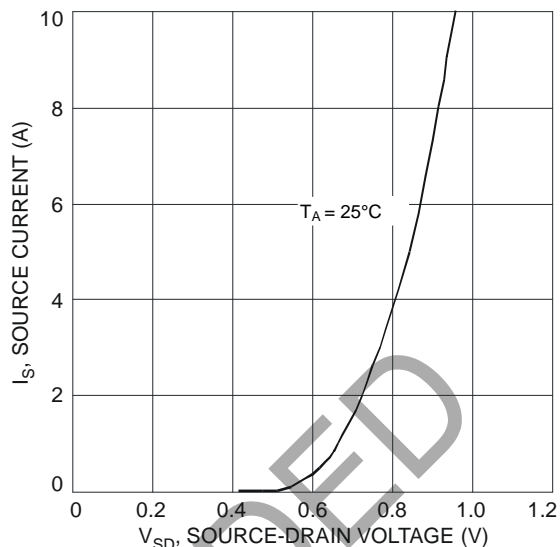


Fig. 8 Diode Forward Voltage vs. Current

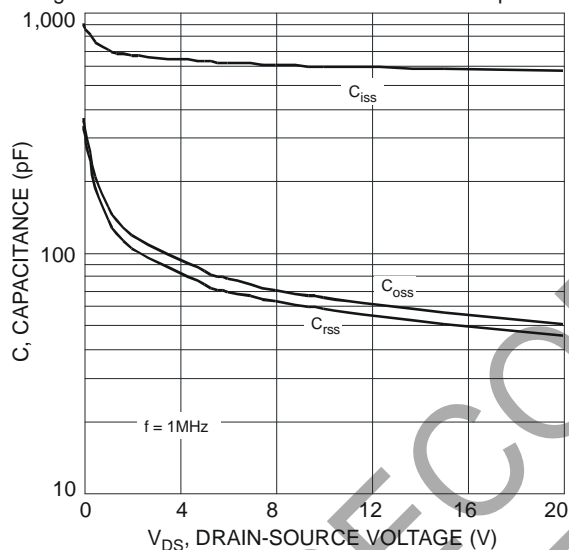


Fig. 9 Typical Capacitance

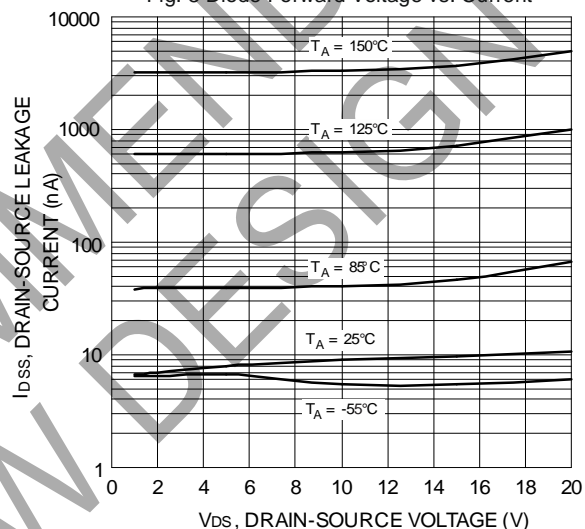


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

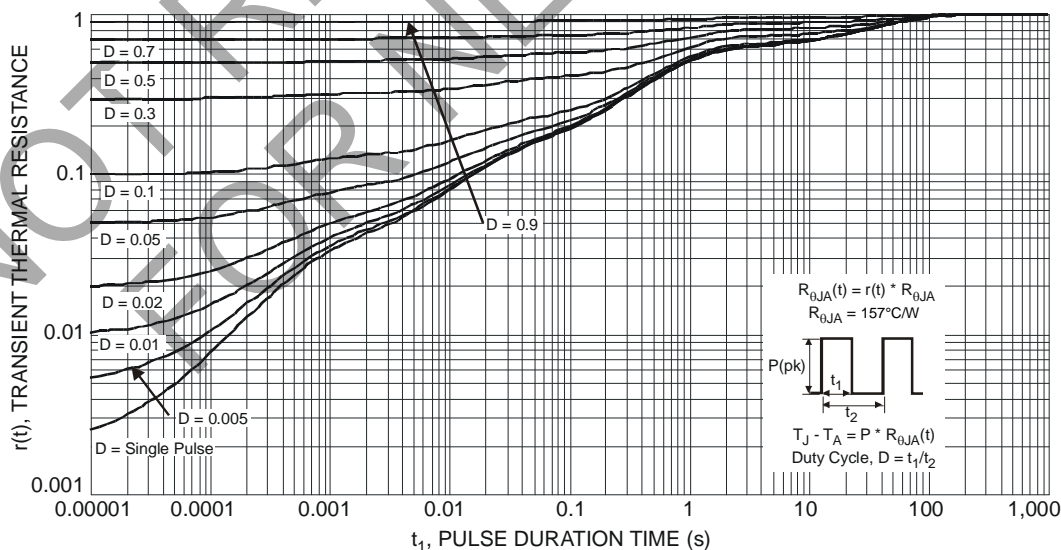
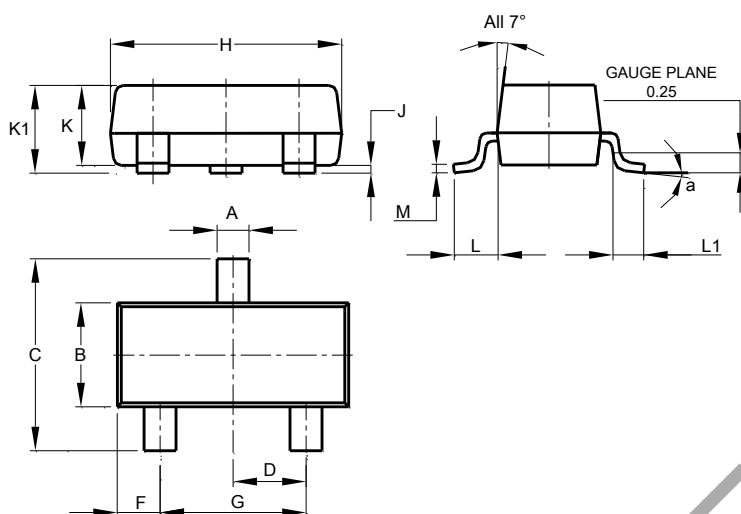


Fig. 11 Transient Thermal Response

Package Outline Dimensions

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

SOT23

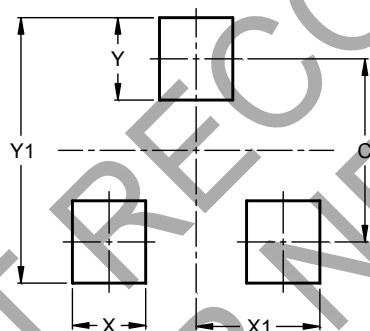


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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