

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

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V _{DSS}	20	V
Gate-Source Voltage	V _{GSS}	±12	V
Drain Current (Note 5)	I _D	5.9	A
Pulsed Drain Current (Note 6)	I _{DM}	21	A

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P _D	1.4	W
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	90	°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	I _{DSS}	—	—	1	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)}	0.45	—	1.4	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(on)}	—	24	29	mΩ	V _{GS} = 4.5V, I _D = 5.0A
			42	50		V _{GS} = 2.5V, I _D = 3.1A
			68	100		V _{GS} = 2.0V, I _D = 1.5A
Forward Transfer Admittance	Y _{fs}	—	8	—	S	V _{DS} = 5V, I _D = 2.1A
Diode Forward Voltage (Note 7)	V _{SD}	—	0.9	1.4	V	V _{GS} = 0V, I _S = 2.0A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	532	—	pF	V _{DS} = 10V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	144	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	117	—	pF	
Gate Resistance	R _G	—	1.3	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz
SWITCHING CHARACTERISTICS (Note 8)						
Total Gate Charge	Q _g	—	6.7	—	nC	V _{DS} = 10V, V _{GS} = 4.5V, I _D = 5.0A
Gate-Source Charge	Q _{gs}	—	0.8	—		V _{DS} = 10V, V _{GS} = 4.5V, I _D = 5.0A
Gate-Drain Charge	Q _{gd}	—	3.0	—		V _{DS} = 10V, V _{GS} = 4.5V, I _D = 5.0A

- Notes:
- Device mounted on FR-4 PCB, on 2oz Copper pad layout with R_{θJA} = 90°C/W.
 - Repetitive rating, pulse width limited by junction temperature.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to production testing.

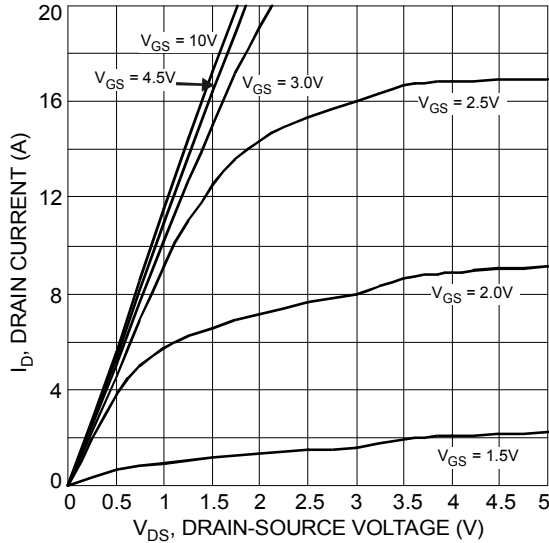


Fig. 1 Typical Output Characteristic

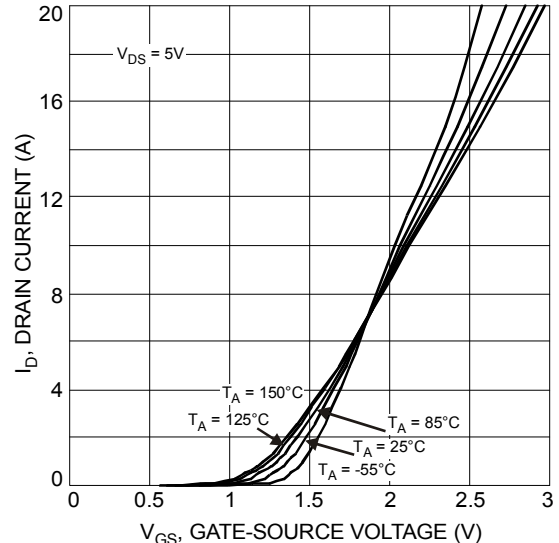


Fig. 2 Typical Transfer Characteristic

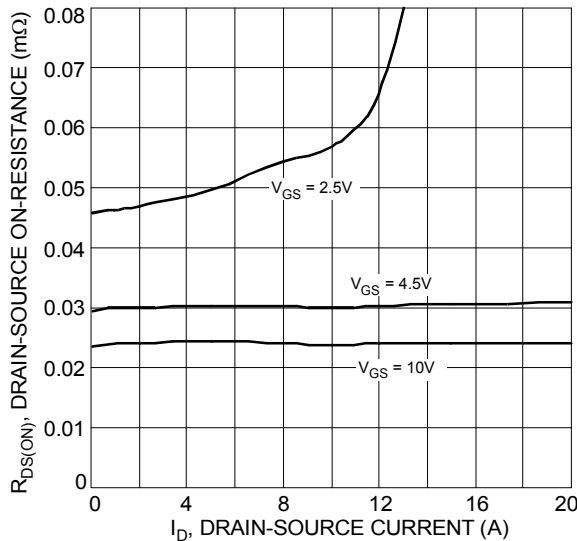


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

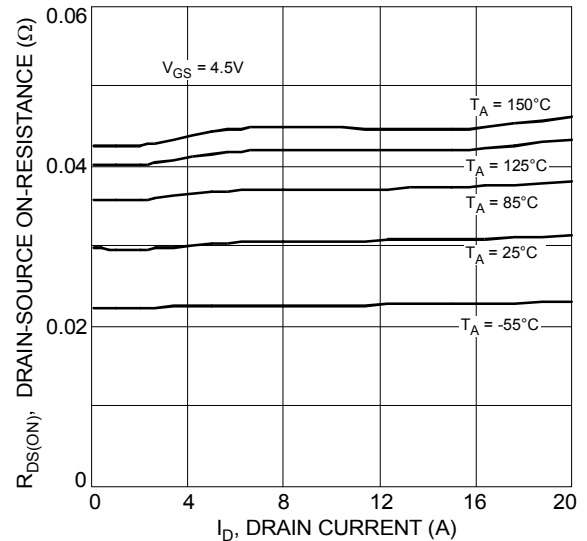


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

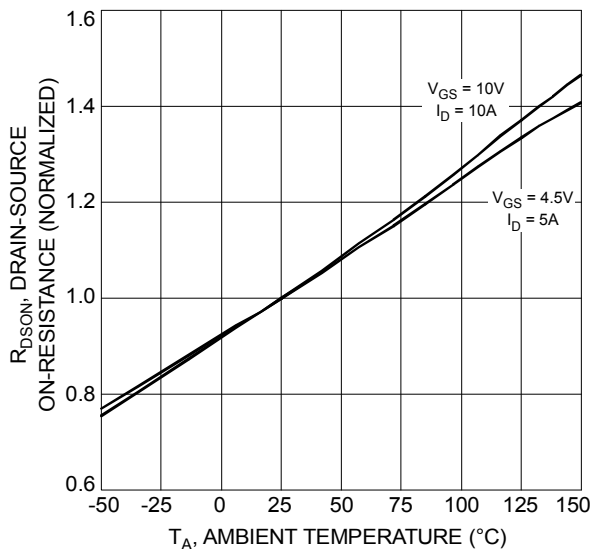


Fig. 5 On-Resistance Variation with Temperature

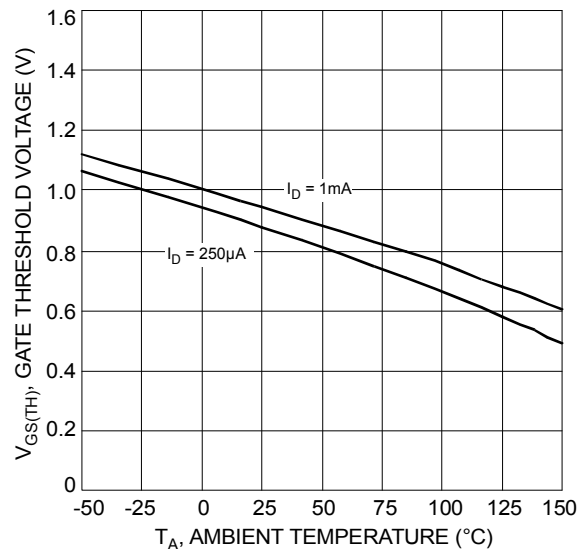


Fig. 6 Gate Threshold Variation vs. Ambient Temperature

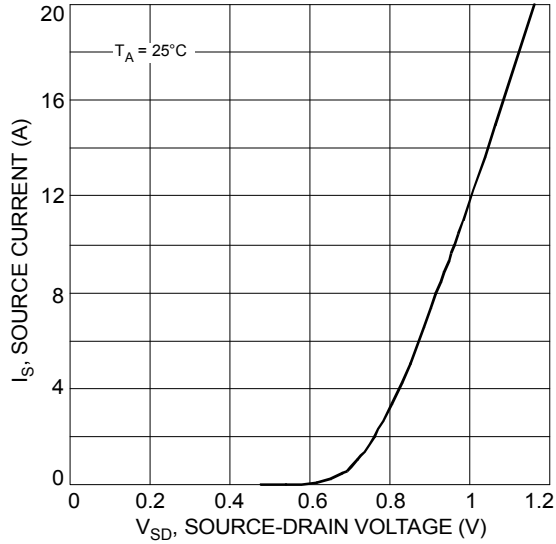


Fig. 7 Diode Forward Voltage vs. Current

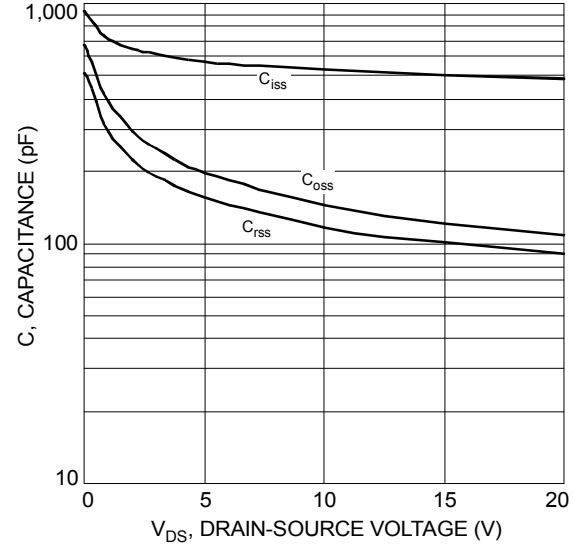


Fig. 8 Typical Total Capacitance

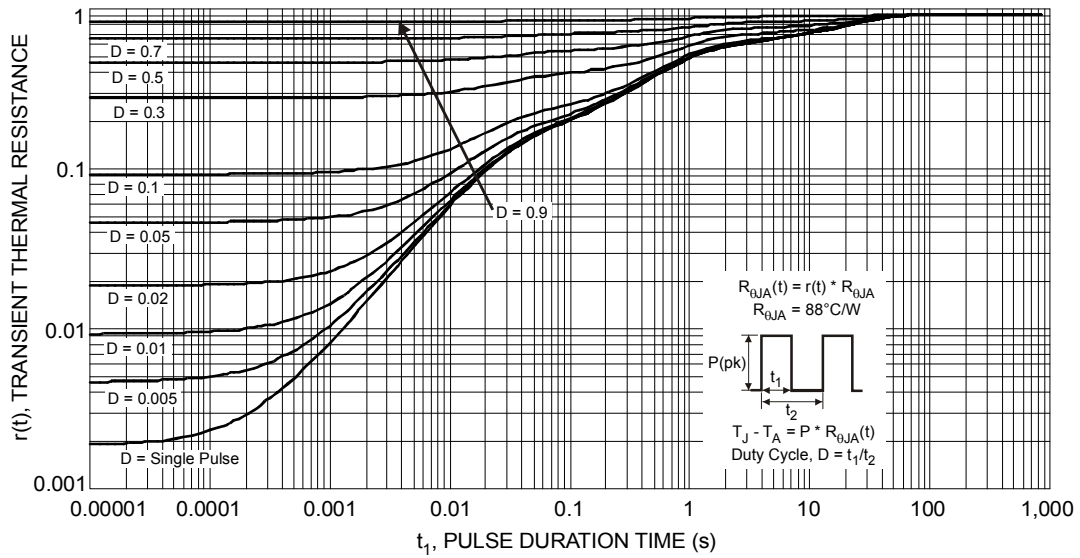
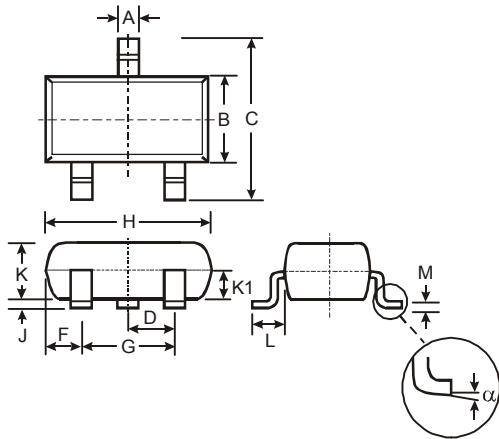


Fig. 9 Transient Thermal Response

Package Outline Dimensions

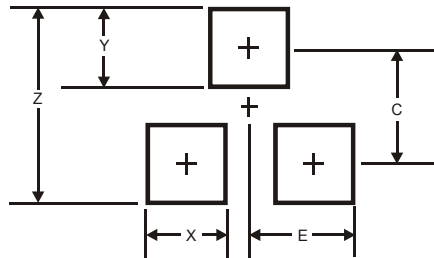
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for latest version.



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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