

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	60	V
Gate-Source Voltage			V _{GSS}	±30	V
Continuous Drain Current (Note 6) V _{GS} = 10V	Steady State	T _A = +25°C T _A = +70°C	I _D	240 180	mA
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	0.5	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%) (Note 6)			I _{DM}	0.8	A

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

Characteristic			Symbol	Value	Unit
Total Power Dissipation (Note 5)			P _D	320	mW
Thermal Resistance, Junction to Ambient (Note 5)	Steady State		R _{θJA}	398	°C/W
Total Power Dissipation (Note 6)			P _D	470	mW
Thermal Resistance, Junction to Ambient (Note 6)	Steady State		R _{θJA}	273	°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}	60	—	—	V	V _{GS} = 0V, I _D = 10μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1.0	μA	V _{DS} = 60V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	1.0	—	2.5	V	V _{DS} = 10V, I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	1.5	5.0	Ω	V _{GS} = 10V, I _D = 0.5A
			3.2	7.5		V _{GS} = 5V, I _D = 0.05A
Forward Transfer Admittance	Y _{fs}	80	—	—	mS	V _{DS} = 10V, I _D = 0.2A
Diode Forward Voltage	V _{SD}	—	0.78	1.5	V	V _{GS} = 0V, I _S = 115mA
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	22	—	pF	V _{DS} = 25V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	4.1	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	2.5	—	pF	
Gate Resistance	R _g	—	120	—	Ω	f = 1.0MHz, V _{GS} = 0V, V _{DS} = 0V
Total Gate Charge (V _{GS} = 4.5V)	Q _g	—	361	—	pC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 250mA
Total Gate Charge (V _{GS} = 10V)	Q _g	—	821	—	pC	
Gate-Source Charge	Q _{gs}	—	162	—	pC	
Gate-Drain Charge	Q _{gd}	—	116	—	pC	
Turn-On Delay Time	t _{D(ON)}	—	2.8	—	ns	V _{DD} = 30V, I _D = 0.2A, R _L = 150Ω, V _{GS} = 10V, R _G = 25Ω
Turn-On Rise Time	t _R	—	3.0	—	ns	
Turn-Off Delay Time	t _{D(OFF)}	—	7.6	—	ns	
Turn-Off Fall Time	t _F	—	5.6	—	ns	

- Notes:
- Device mounted on FR-4 PCB, with minimum recommended pad layout
 - Device mounted on 1" x 1" FR-4 PCB with high coverage 2oz. Copper, single sided.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

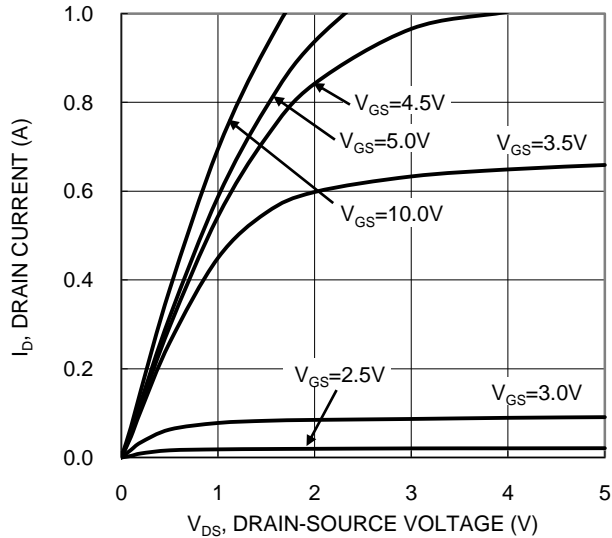


Figure 1. Typical Output Characteristic

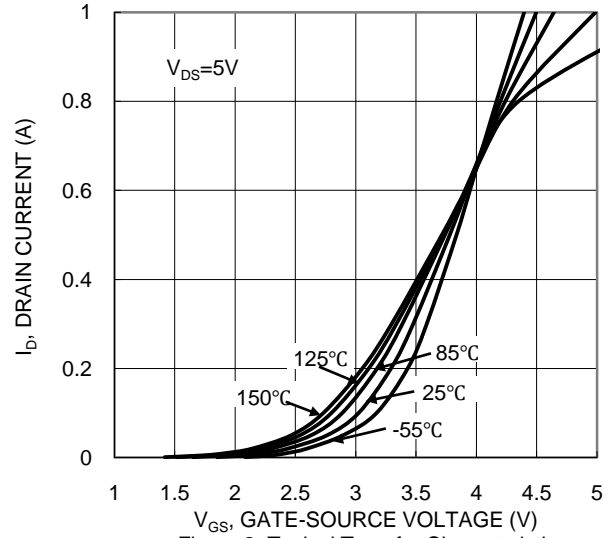


Figure 2. Typical Transfer Characteristic

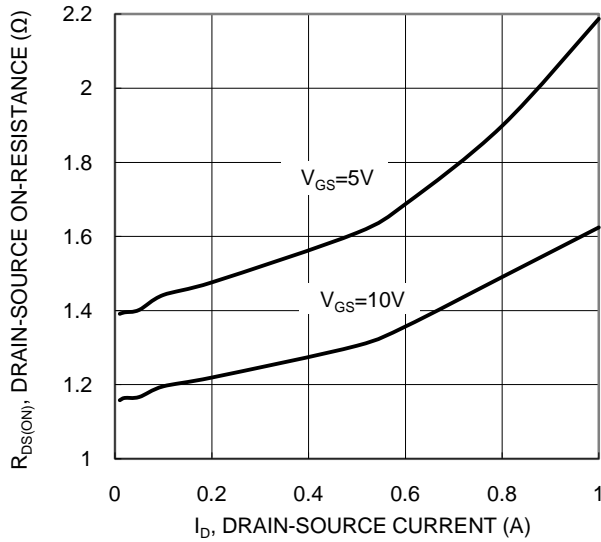


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

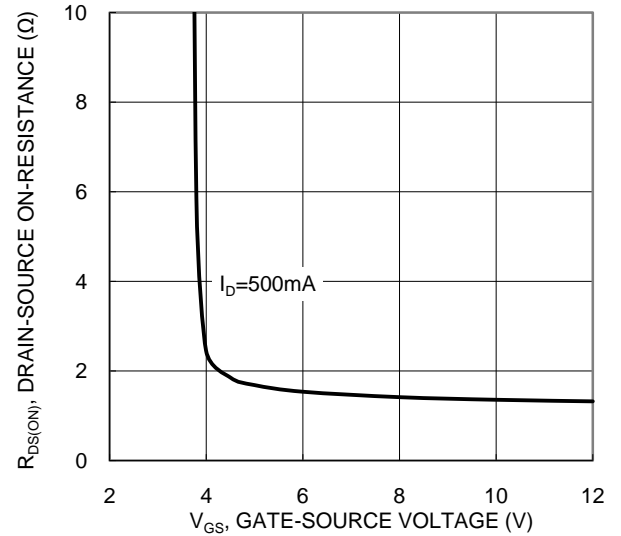


Figure 4. Typical Transfer Characteristic

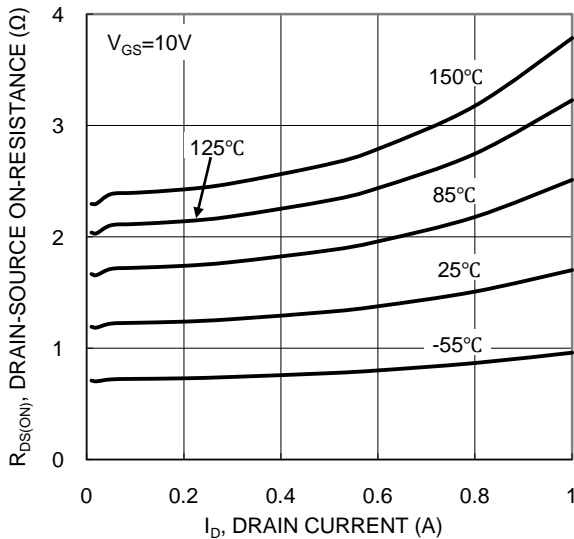


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

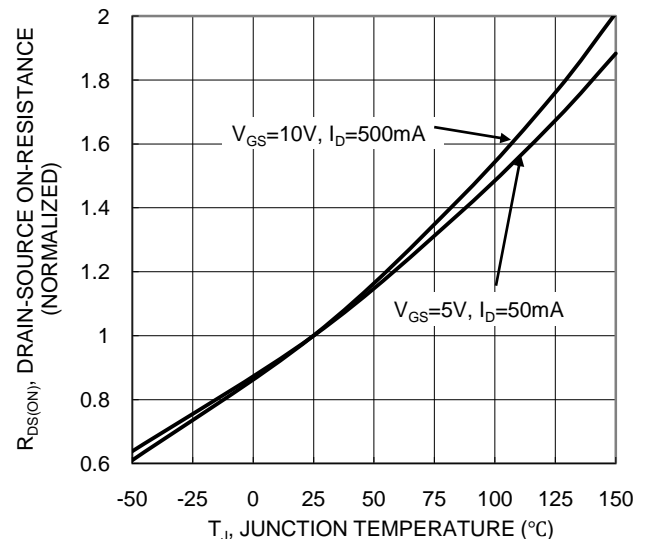


Figure 6. On-Resistance Variation with Junction Temperature

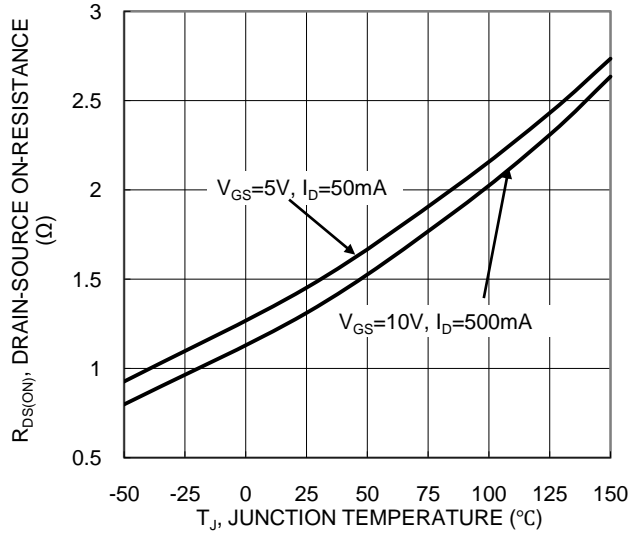


Figure 7. On-Resistance Variation with Junction Temperature

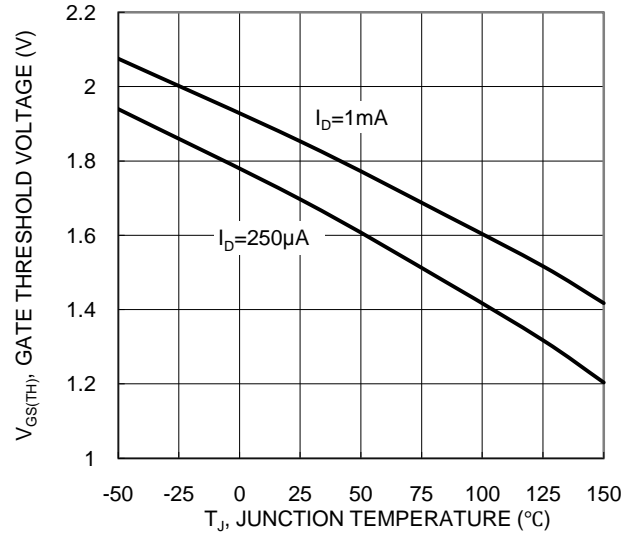


Figure 8. Gate Threshold Variation vs. Junction Temperature

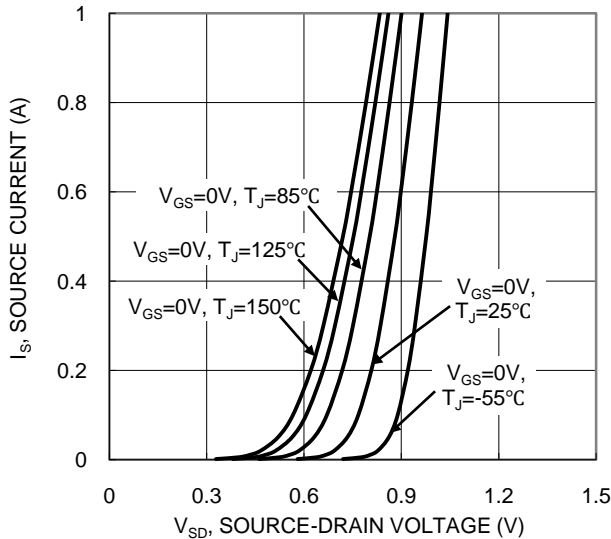


Figure 9. Diode Forward Voltage vs. Current

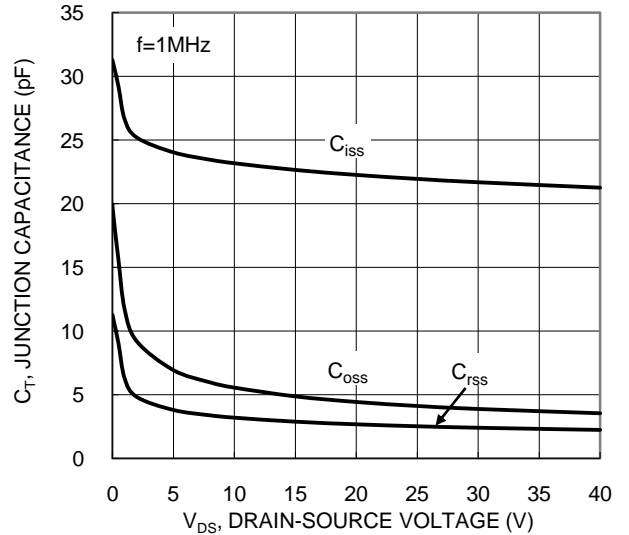


Figure 10. Typical Junction Capacitance

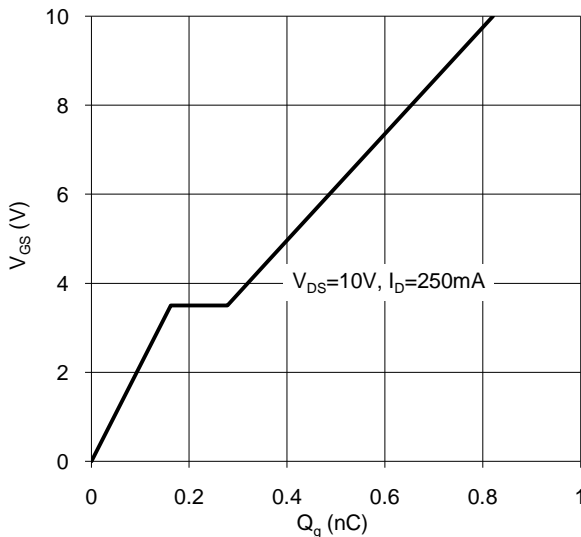


Figure 11. Gate Charge

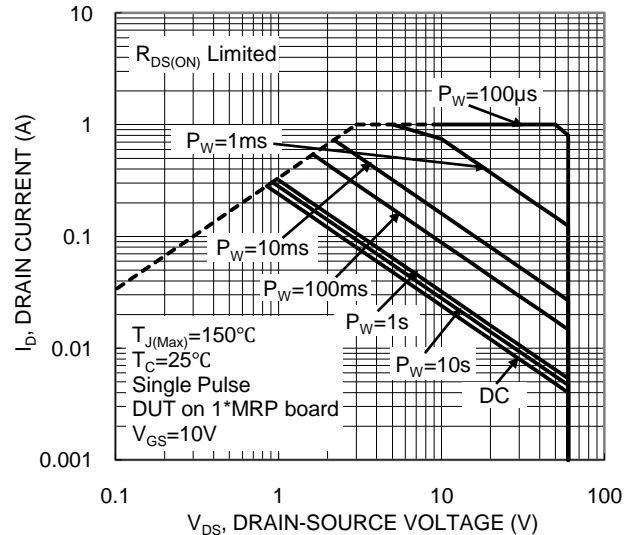
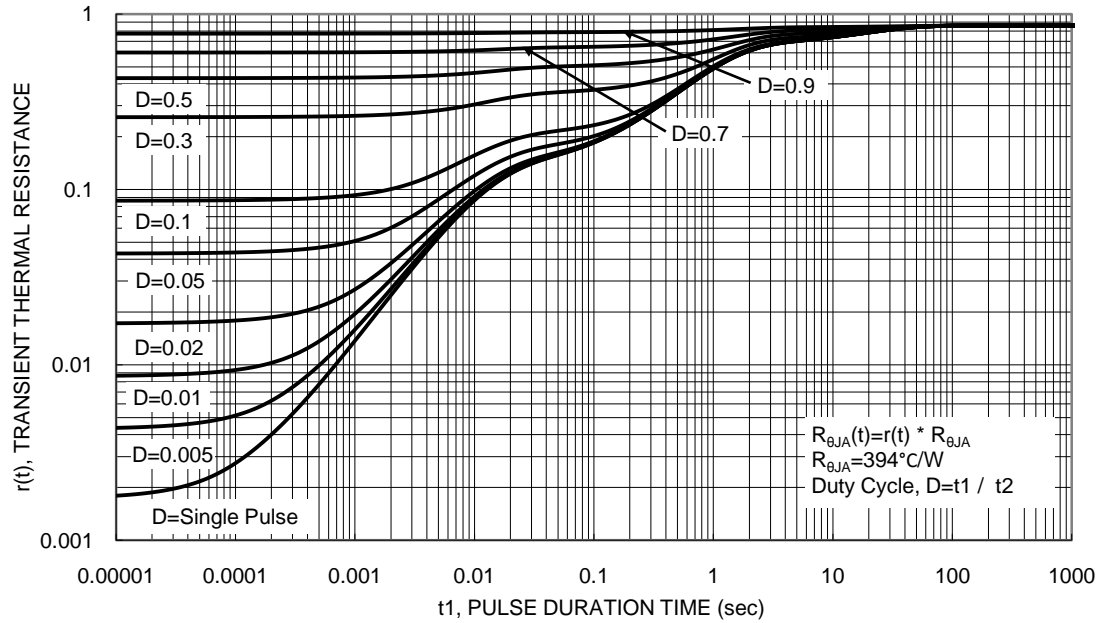
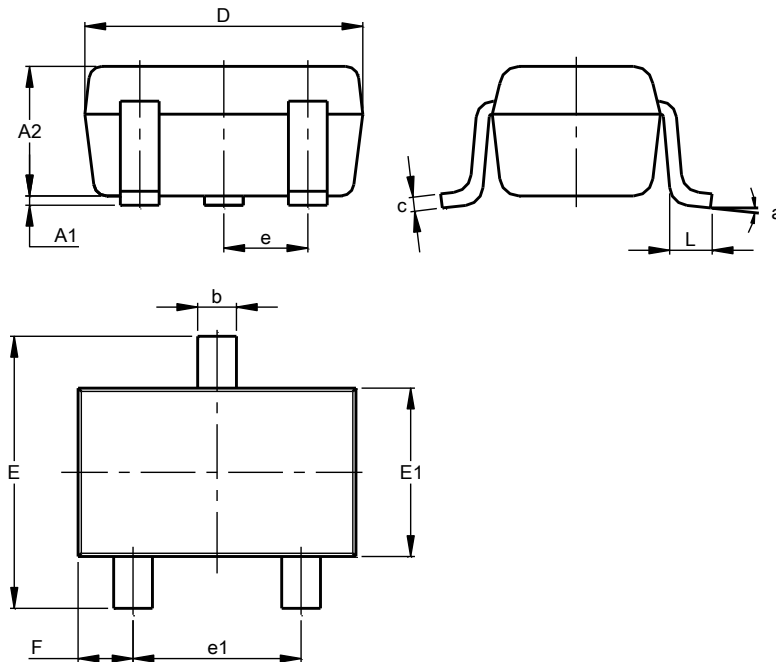


Figure 12. SOA, Safe Operation Area



Package Outline Dimensions

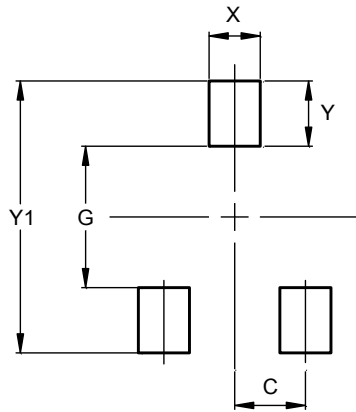
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	8°		
All Dimensions in mm			

Suggested Pad Layout

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



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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