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

Characteristic		Symbol	Value	Units
Drain-Source Voltage		V_{DSS}	-60	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current (Note 6) V_{GS} = -10V	T_A = +25°C T_A = +70°C	I_D	-6.6 -5.3	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)		I_{DM}	-50	A
Maximum Continuous Body Diode Forward Current (Note 6)		I_S	-1.8	A
Avalanche Current, L = 0.1mH		I_{AS}	-35.5	A
Avalanche Energy, L = 0.1mH		E_{AS}	62.9	mJ

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

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P_D	1.2	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	100	°C/W
Total Power Dissipation (Note 6)	P_D	1.6	W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	75	°C/W
Thermal Resistance, Junction to Case (Note 6)	$R_{\theta JC}$	12	
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 = -250µA
Zero Gate Voltage Drain Current T_J = +25°C	I_{DSS}	—	—	-1	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	—	-3	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	—	25	mΩ	V_{GS} = -10V, I_D = -5A
		—	—	33		V_{GS} = -4.5V, I_D = -4A
Diode Forward Voltage	V_{SD}	—	-0.7	-1.2	V	V_{GS} = 0V, I_S = -1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	2569	—	pF	V_{DS} = -30V, V_{GS} = 0V, f = 1MHz
Output Capacitance	C_{oss}	—	179	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	143	—	pF	
Gate Resistance	R_g	—	8	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge (V_{GS} = -4.5V,)	Q_g	—	26.5	—	nC	V_{DS} = -30V, I_D = -5A
Total Gate Charge (V_{GS} = -10V),	Q_g	—	53.1	—	nC	
Gate-Source Charge	Q_{gs}	—	7.1	—	nC	
Gate-Drain Charge	Q_{gd}	—	12.6	—	nC	
Turn-On Delay Time	$t_{D(on)}$	—	6	—	ns	V_{GS} = -10V, V_{DS} = -30V, R_G = 3Ω, I_D = -5A
Turn-On Rise Time	t_r	—	7.1	—	ns	
Turn-Off Delay Time	$t_{D(off)}$	—	110	—	ns	
Turn-Off Fall Time	t_f	—	62	—	ns	
Body Diode Reverse Recovery Time	t_{rr}	—	20	—	nS	I_F = -5A, di/dt = 100A/µs
Body Diode Reverse Recovery Charge	Q_{rr}	—	14	—	nC	

Notes: 5. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
6. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1-inch square copper plate.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to product testing.

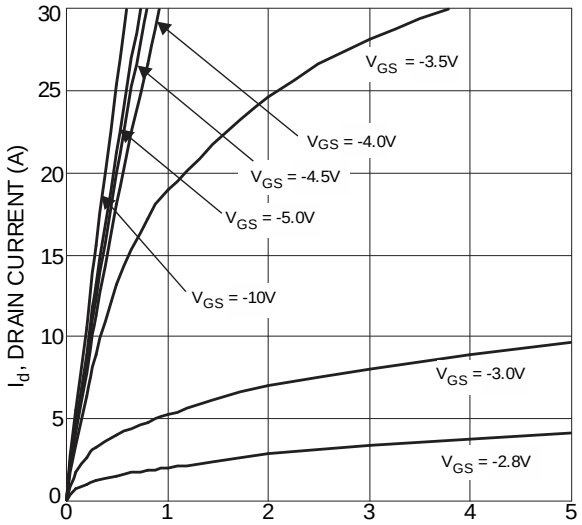


Figure 1 Typical Output Characteristics

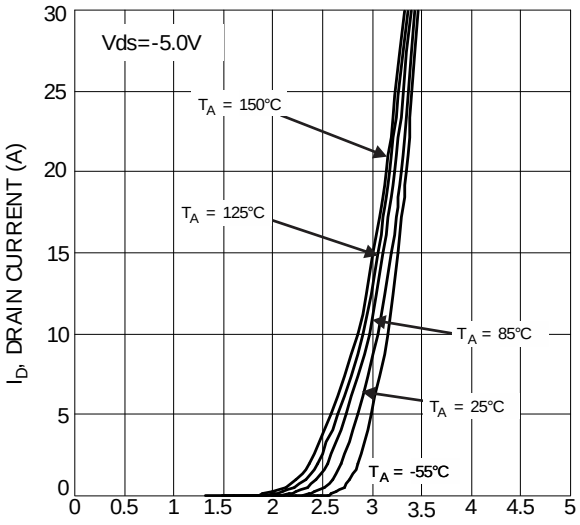


Figure 2 Typical Transfer Characteristics

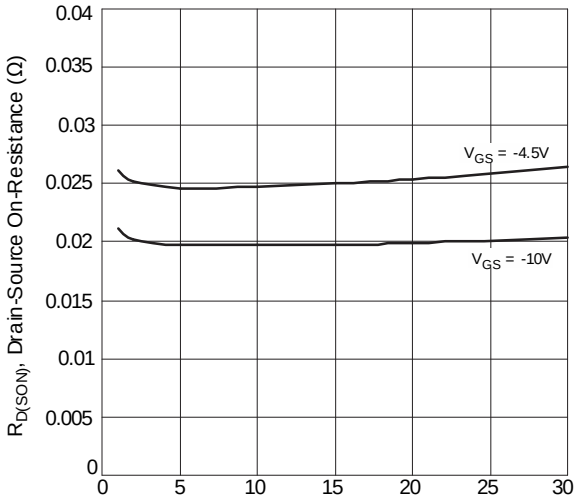


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

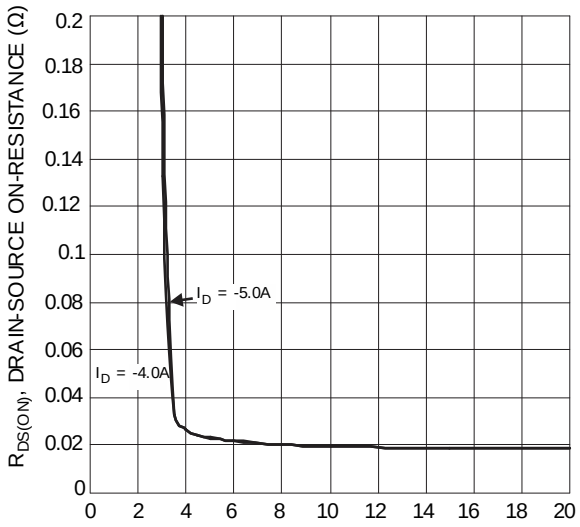


Figure 4 Typical Transfer Characteristics

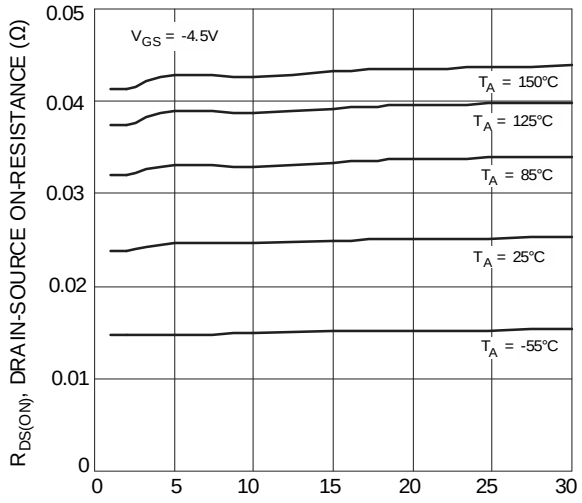


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

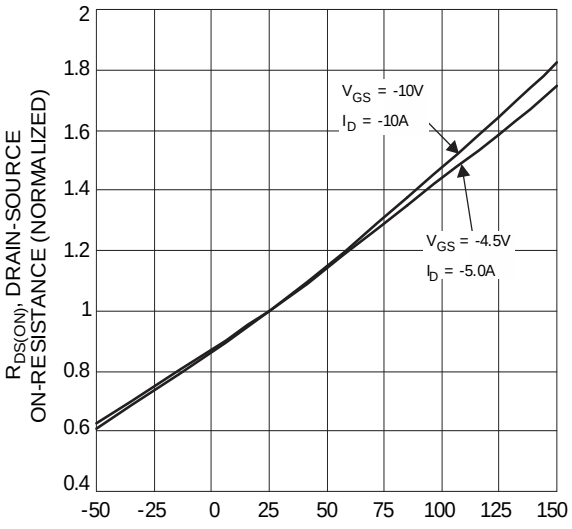


Figure 6 On-Resistance Variation with Temperature

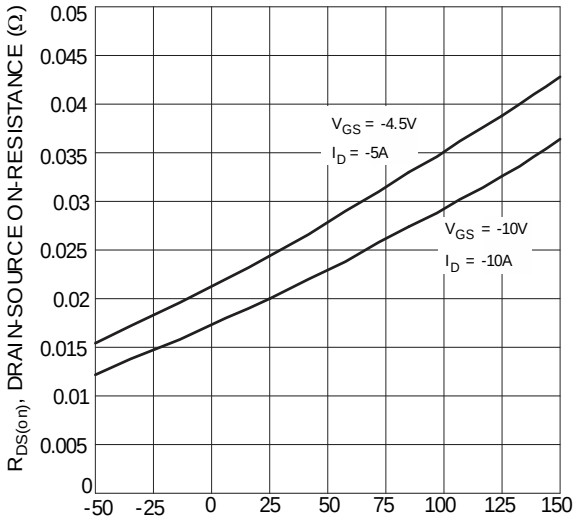


Figure 7 On-Resistance Variation with Temperature

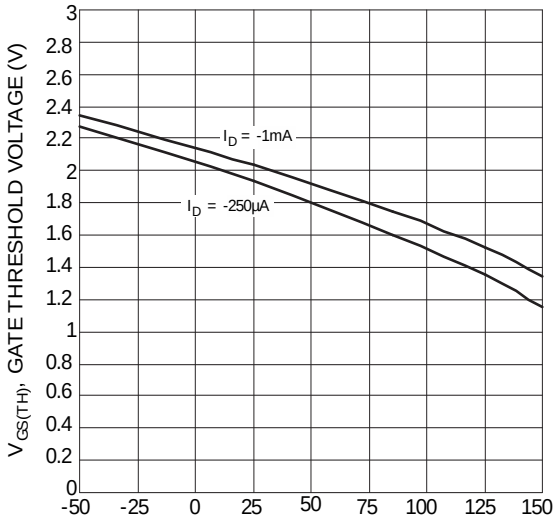


Figure 8 Gate Threshold Variation vs. Ambient Temperature

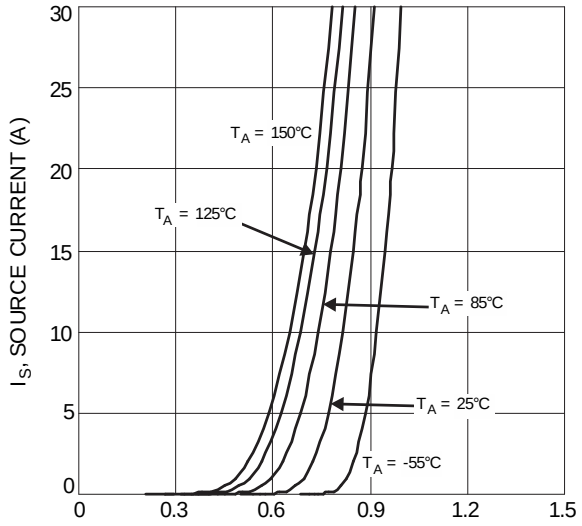


Figure 9 Diode Forward Voltage vs. Current

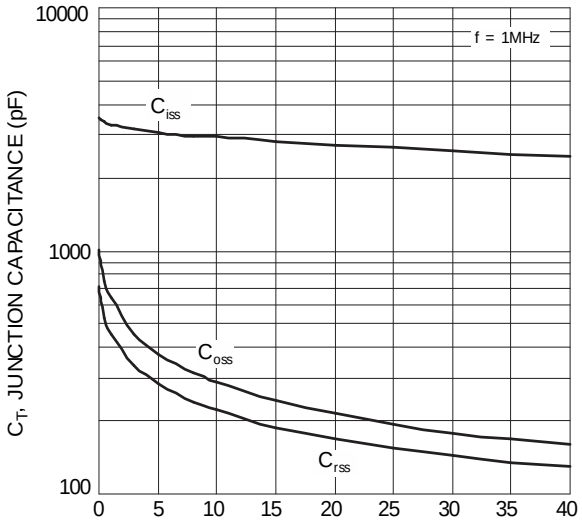


Figure 10 Typical Junction Capacitance

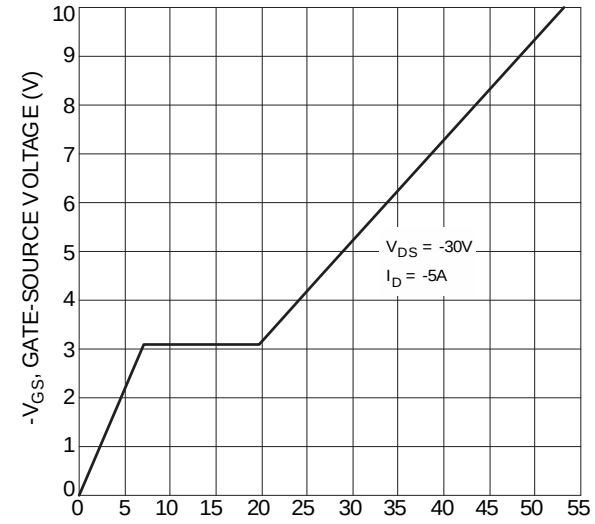


Figure 11 Gate-Charge Characteristics

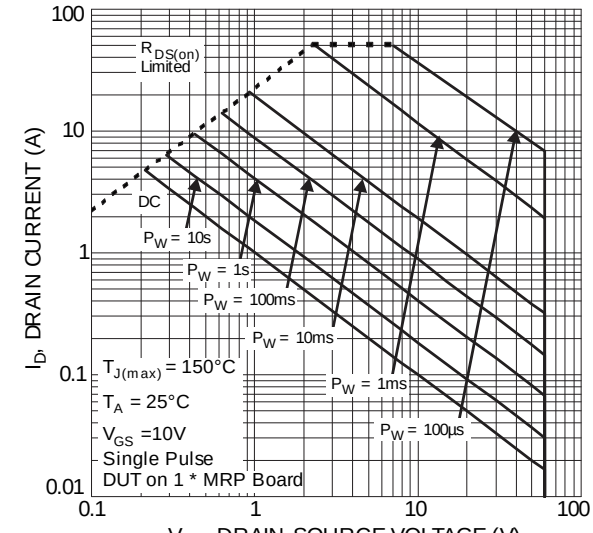


Figure 12 SOA, Safe Operation Area

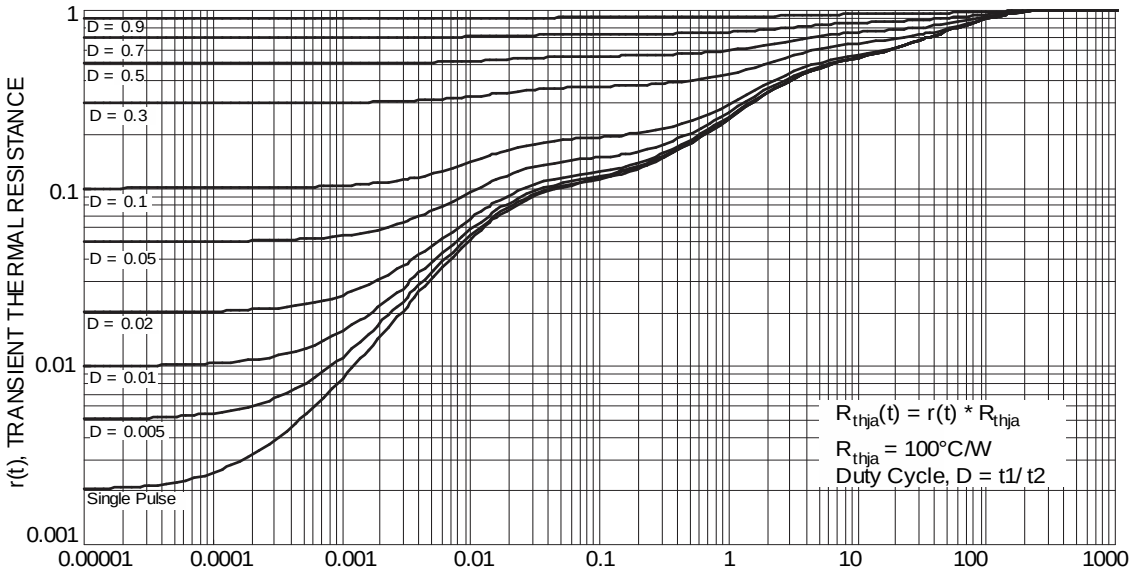
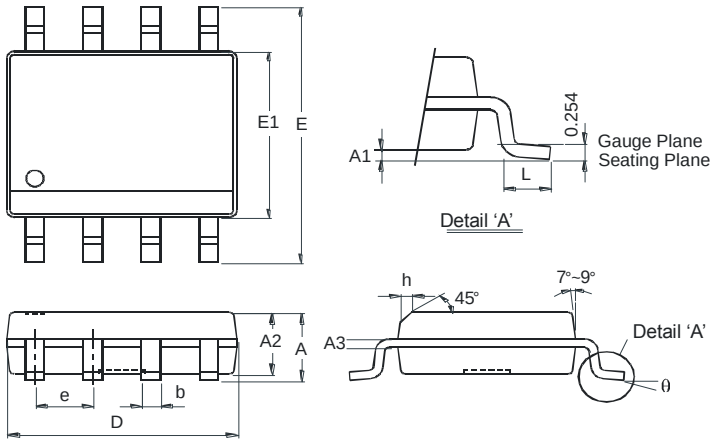


Figure 13 Transient Thermal Resistance

Package Outline Dimensions

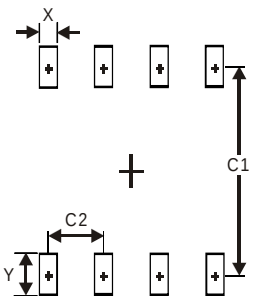
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SO-8		
Dim	**Min**	**Max**
A	-	1.75
A1	0.10	0.20
A2	1.30	1.50
A3	0.15	0.25
b	0.3	0.5
D	4.85	4.95
E	5.90	6.10
E1	3.85	3.95
e	1.27 Typ	
h	-	0.35
L	0.62	0.82
θ	0°	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)
X	0.60
Y	1.55
C1	5.4
C2	1.27

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