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

Characteristic				Symbol	Value	Units
Drain-Source Voltage				V_{DSS}	40	V
Gate-Source Voltage				V_{GSS}	±20	V
Continuous Drain Current (Note 6)	V_{GS} = 10V	Steady State	T_A = +25°C T_A = +70°C	I_D	5.2 4.1	A
Continuous Drain Current (Note 6)	V_{GS} = 4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	4.3 3.4	A
Continuous Drain Current (Note 7)	V_{GS} = 10V	Steady State	T_A = +25°C T_A = +70°C	I_D	7.0 5.6	A
Continuous Drain Current (Note 7)	V_{GS} = 4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	5.8 4.7	A
Pulsed Drain Current (Note 8)				I_{DM}	20	A

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

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 6)	P_D	1.42	W
Thermal Resistance, Junction to Ambient @T_A = +25°C (Note 5)	$R_{\theta JA}$	88	°C/W
Total Power Dissipation (Note 7)	P_D	2.6	W
Thermal Resistance, Junction to Ambient @T_A = +25°C (Note 6)	$R_{\theta JA}$	48	°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}	40	—	—	V	V_{GS} = 0V, I_D = 10mA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	V_{DS} = 40V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 9)						
Gate Threshold Voltage	$V_{GS(th)}$	1.6	2.4	3.0	V	V_{DS} = V_{GS}, I_D = 250μA
On-state drain current	$I_{D(ON)}$	20	—	—	A	V_{GS} = 10V, V_{DS} = 5A
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	19	31	mΩ	V_{GS} = 10V, I_D = 6A
		—	44	50		V_{GS} = 4.5V, I_D = 5A
Forward Transfer Admittance	$\|Y_{fs}\|$	—	11	—	S	V_{DS} = 5V, I_D = 6A
Diode Forward Voltage	V_{SD}	—	0.74	1.0	V	V_{GS} = 0V, I_S = 1A
DYNAMIC CHARACTERISTICS (Note 10)						
Input Capacitance	C_{iss}	—	945	—	pF	V_{DS} = 20V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	—	69	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	58	—	pF	
Gate Resistance	R_g	—	1.45	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz
Total Gate Charge (V_{GS} = 4.5V)	Q_g	—	8.4	—	nC	V_{GS} = 10V, V_{DS} = 20V, I_D = 12A
Total Gate Charge (V_{GS} = 10V)	Q_g	—	18.6	—	nC	
Gate-Source Charge	Q_{gs}	—	3.3	—	nC	
Gate-Drain Charge	Q_{gd}	—	2.2	—	nC	
Turn-On Delay Time	$T_{D(on)}$	—	6.4	—	ns	V_{GS} = 10V, V_{DS} = 20V, R_L= 1.6Ω, R_G= 3Ω
Turn-On Rise Time	T_r	—	9.7	—	ns	
Turn-Off Delay Time	$T_{D(off)}$	—	19.8	—	ns	
Turn-Off Fall Time	T_f	—	3.1	—	ns	

Notes: 6. Device mounted on FR-4 PCB, with minimum recommended pad layout. The value in any given application depends on user's specific board design.
7. Device mounted on 1" x 1" FR-4PCB with high coverage 1 oz. Copper, single sided.
8. Repetitive rating, pulse width limited by junction temperature.
9. Short duration pulse test used to minimize self-heating effect.
10. Guaranteed by design. No subject to production testing.

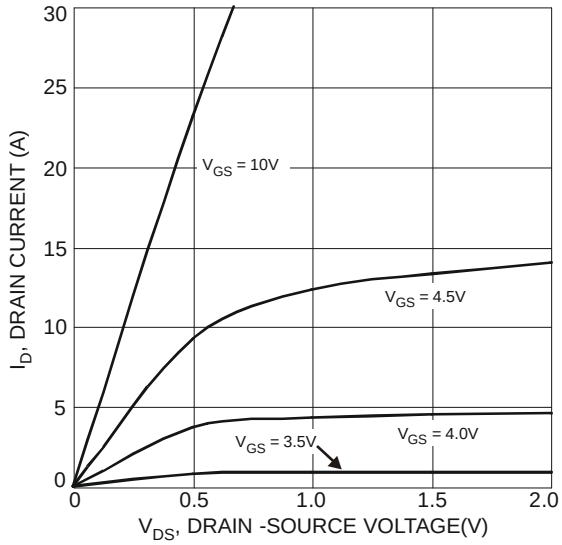


Fig. 1 Typical Output Characteristics

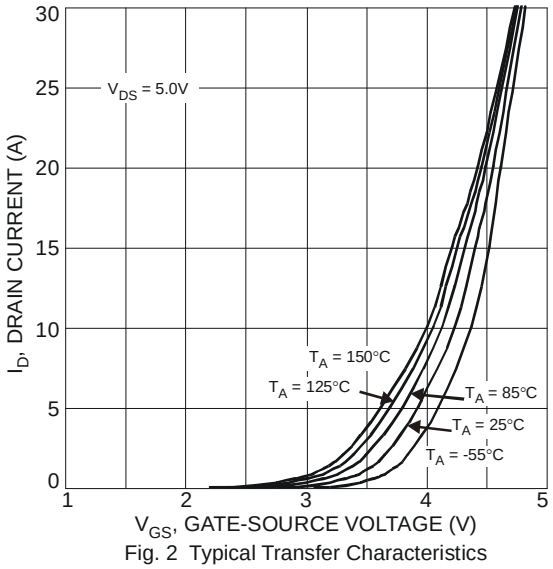


Fig. 2 Typical Transfer Characteristics

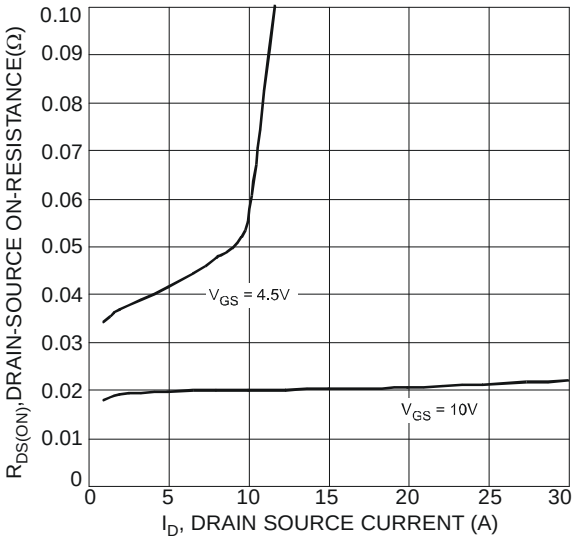


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

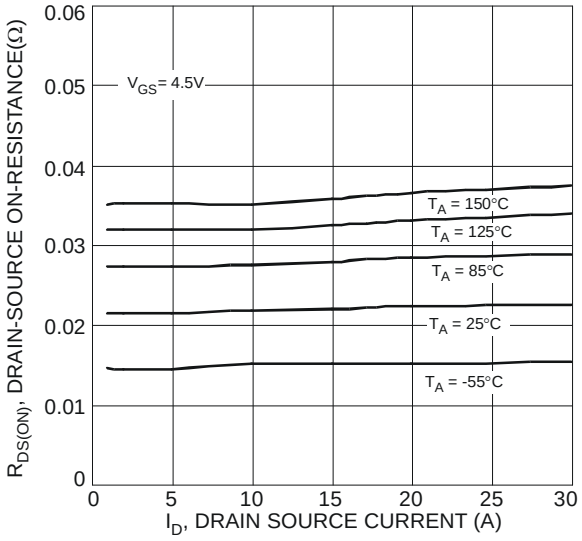


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

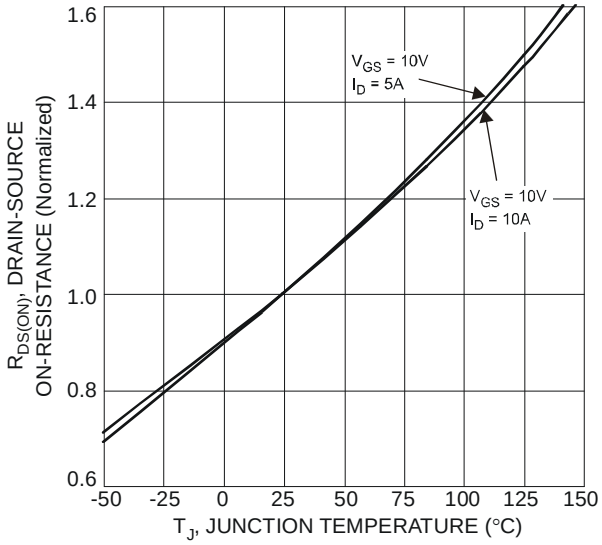


Fig. 5 On-Resistance Variation with Temperature

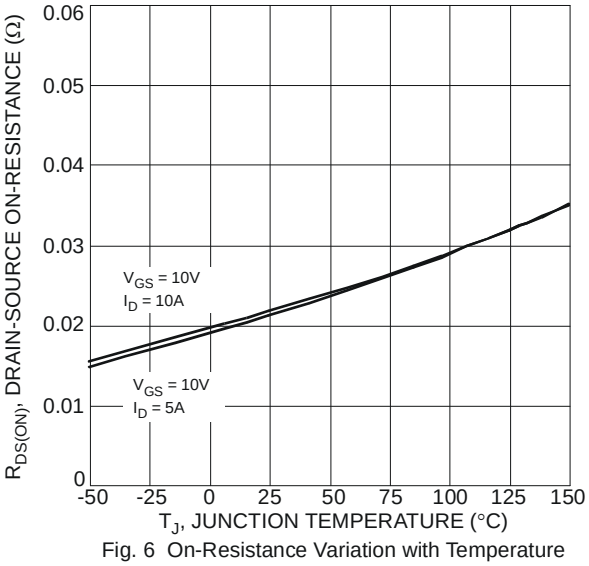


Fig. 6 On-Resistance Variation with Temperature

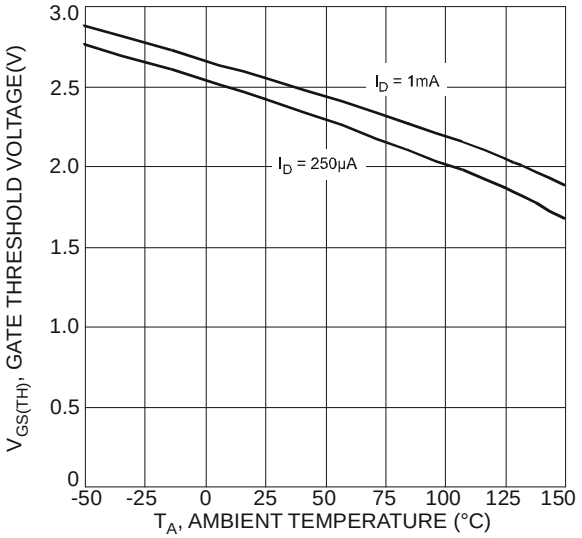


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

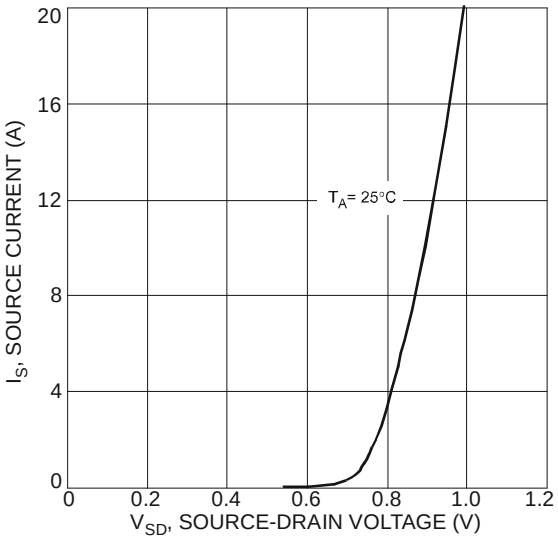


Fig. 8 Diode Forward Voltage vs. Current

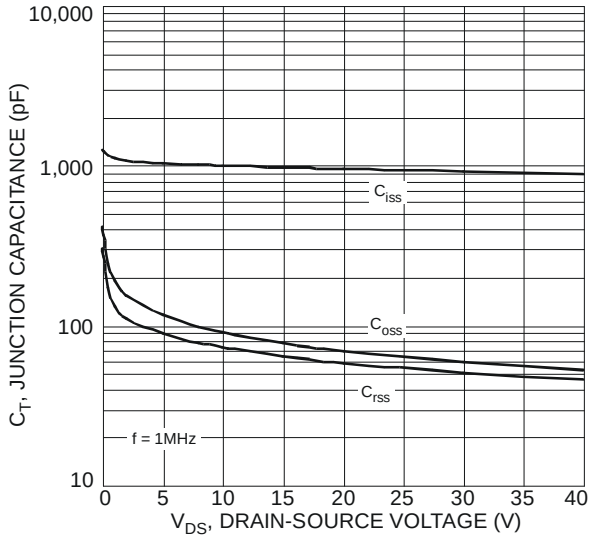


Fig. 9 Typical Junction Capacitance

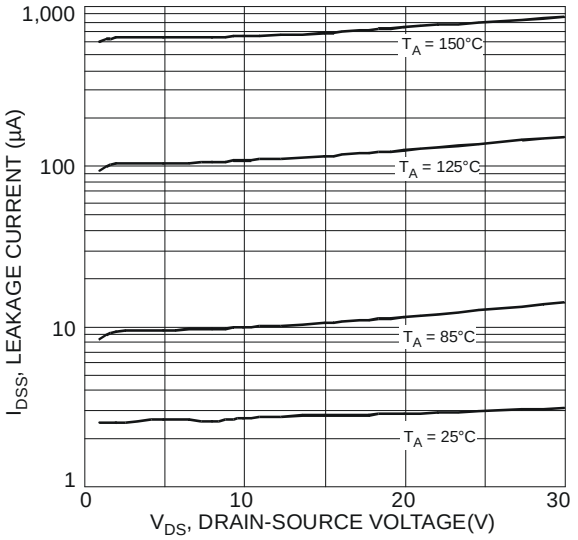


Fig. 10 Typical Drain-Source Leakage Current vs. Voltage

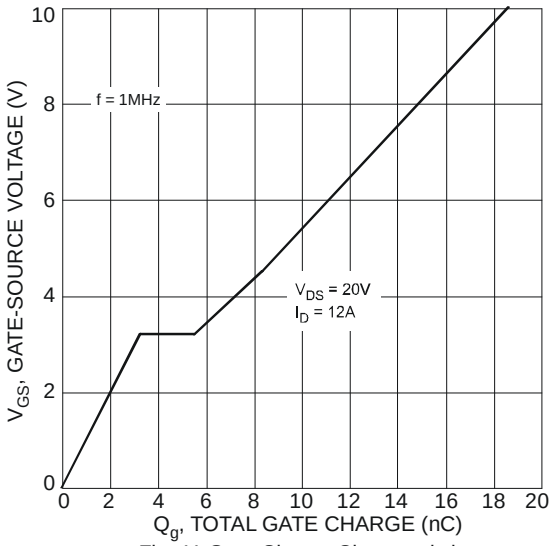


Fig. 11 Gate-Charge Characteristics

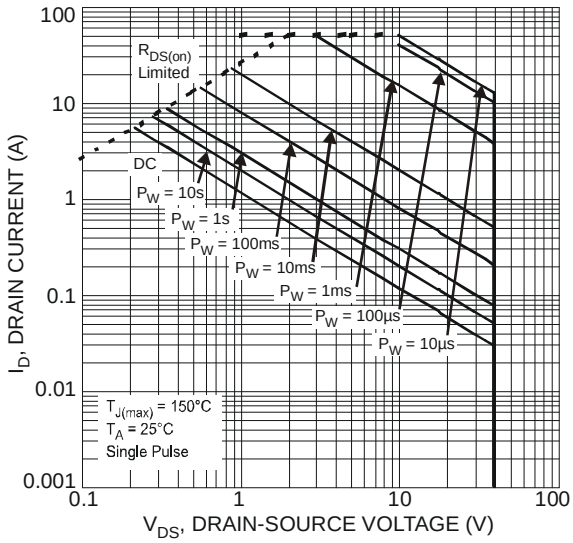
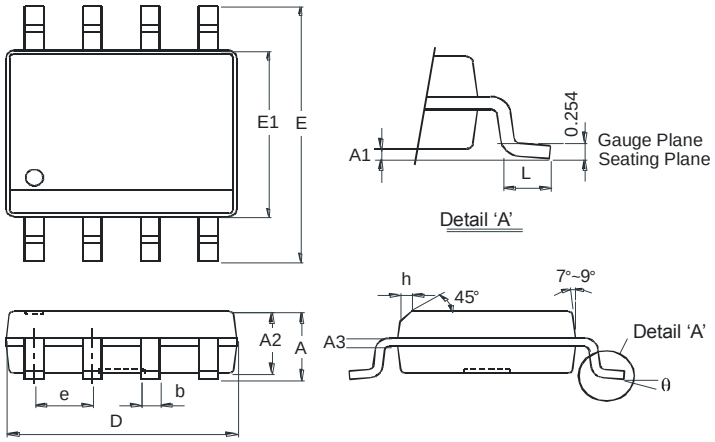


Fig. 12 SOA, Safe Operation Area

Package Outline Dimensions

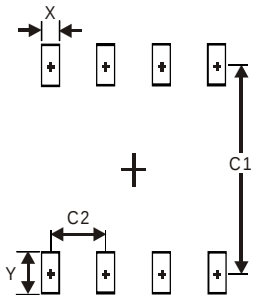
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



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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