

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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V _{DSS}	-30	V
Gate-Source Voltage			V _{GSS}	±12	V
Continuous Drain Current (Note 5) V _{GS} = -10V	Steady State	T _A = +25°C	I _D	-3.0	A
		T _A = +70°C		-2.3	
Continuous Drain Current (Note 6) V _{GS} = -10V	Steady State	T _A = +25°C	I _D	-3.7	A
		T _A = +70°C		-2.9	
Pulsed Drain Current (10μs pulse, duty cycle = 1%)			I _{DM}	-30	A
Maximum Body Diode Continuous Current (Note 6)			I _S	-1.5	A

Thermal Characteristics

Characteristic		Symbol	Value	Units
Total Power Dissipation	(Note 5)	P _D	0.8	W
	(Note 6)		1.2	
Thermal Resistance, Junction to Ambient	(Note 5)	R _{θJA}	159	°C/W
	(Note 6)		105	
Thermal Resistance, Junction to Case	(Note 6)	R _{θJC}	36	
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}	-30	-	-	V	V _{GS} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current T _J = 25°C	I _{DSS}	-	-	-1.0	μA	V _{DS} = -30V, V _{GS} = 0V
Gate-Body Leakage	I _{GSS}	-	-	±100	nA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(th)}	-0.5	-1.0	-1.3	V	V _{DS} = V _{GS} , I _D = -250μA
Static Drain-Source On-Resistance	R _{DS(on)}	-	41	50	mΩ	V _{GS} = -10V, I _D = -4A
		-	47	60		V _{GS} = -4.5V, I _D = -3.5A
		-	60	85		V _{GS} = -2.5V, I _D = -2.5A
Forward Transfer Admittance	Y _{fs}	-	12	-	S	V _{DS} = -5V, I _D = -4A
Diode Forward Voltage	V _{SD}	-	-0.8	-1.0	V	V _{GS} = 0V, I _S = -1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	-	1326	-	pF	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	103	-		
Reverse Transfer Capacitance	C _{rss}	-	71	-		
Gate Resistance	R _g	-	7.3	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz
Total Gate Charge (V _{GS} = -4.5V)	Q _g	-	11.6	-	nC	V _{DD} = -15V, I _D = -4A
Total Gate Charge (V _{GS} = -10V)	Q _g	-	25.1	-		
Gate-Source Charge	Q _{gs}	-	2	-		
Gate-Drain Charge	Q _{gd}	-	1.7	-		
Turn-On Delay Time	t _{D(on)}	-	8	-	nS	V _{DS} = -15V, V _{GS} = -10V, R _{GEN} = 6Ω, R _L = 3.75Ω
Turn-On Rise Time	t _r	-	13	-		
Turn-Off Delay Time	t _{D(off)}	-	71	-		
Turn-Off Fall Time	t _f	-	38	-		

- 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 1inch square copper pad layout
 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to production testing

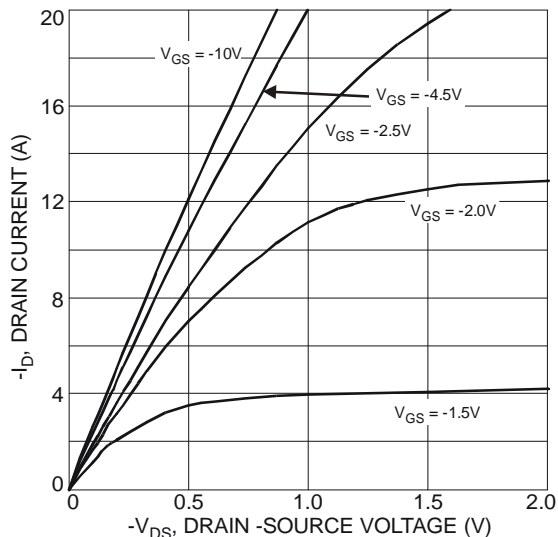


Figure 1 Typical Output Characteristics

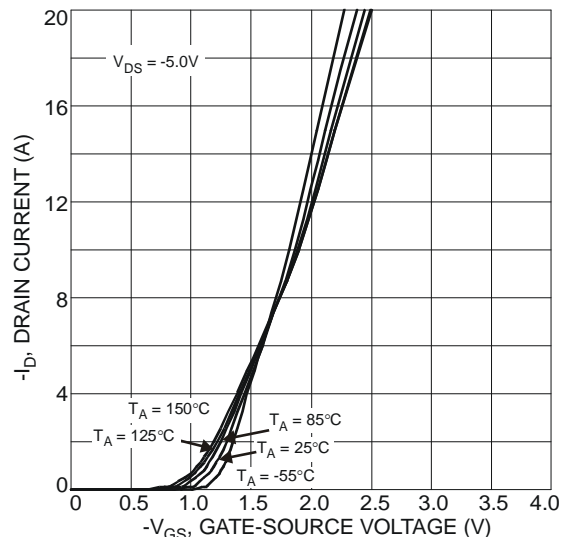


Figure 2 Typical Transfer Characteristics

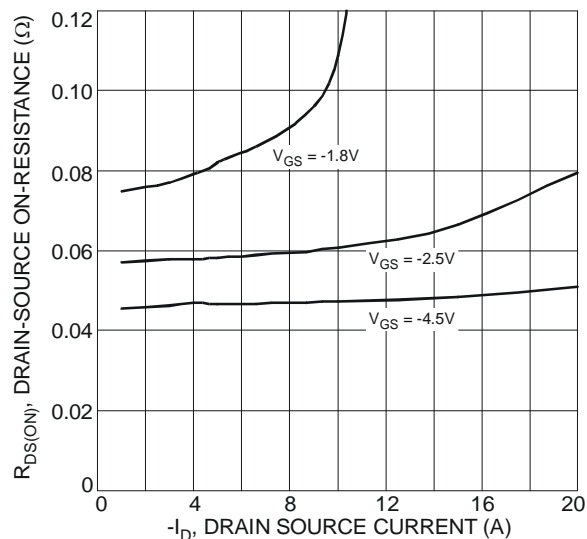


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

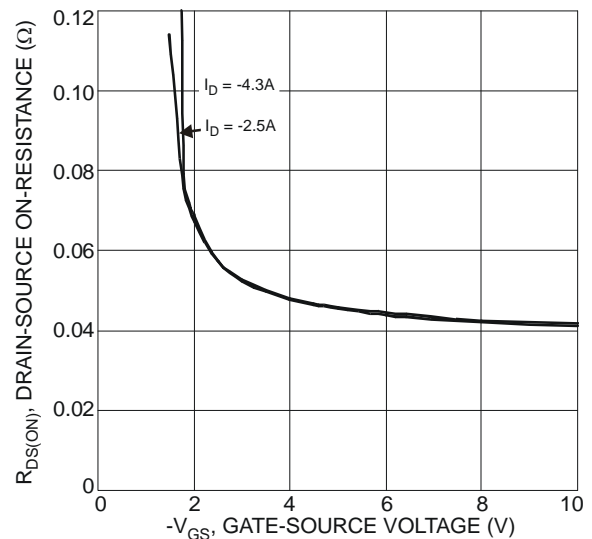


Figure 4 Typical Drain-Source On-Resistance vs. Gate-Source Voltage

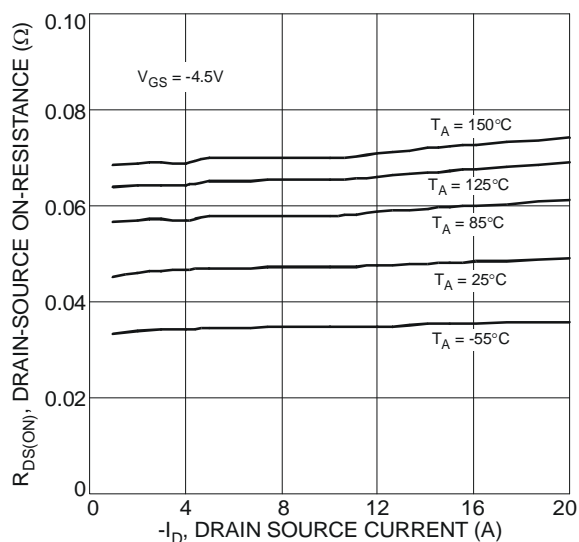


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

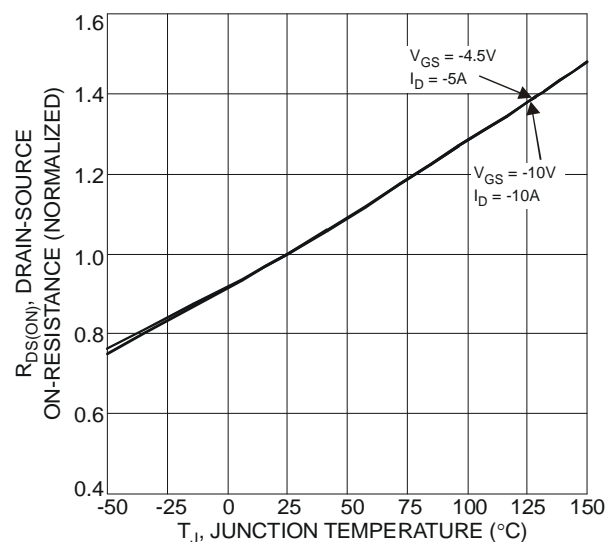
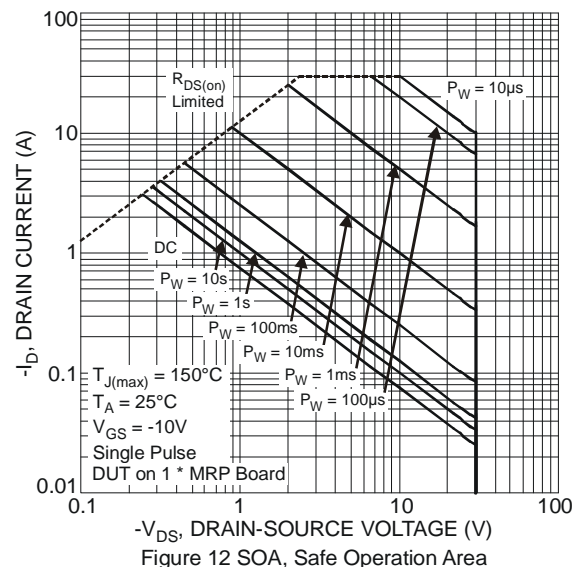
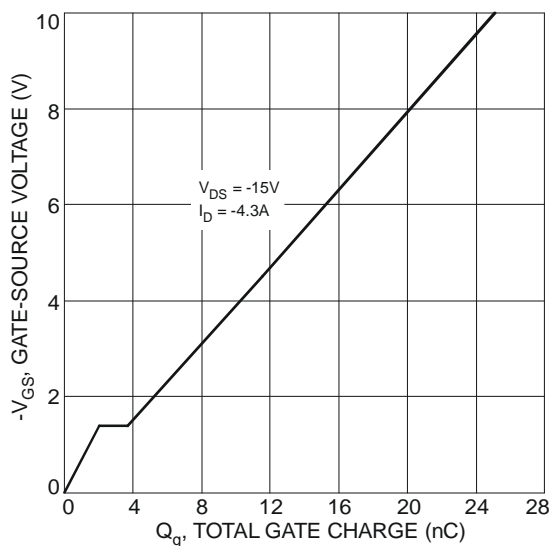
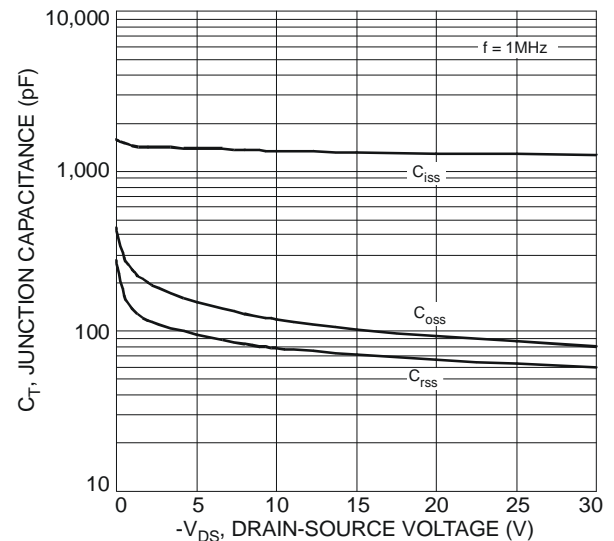
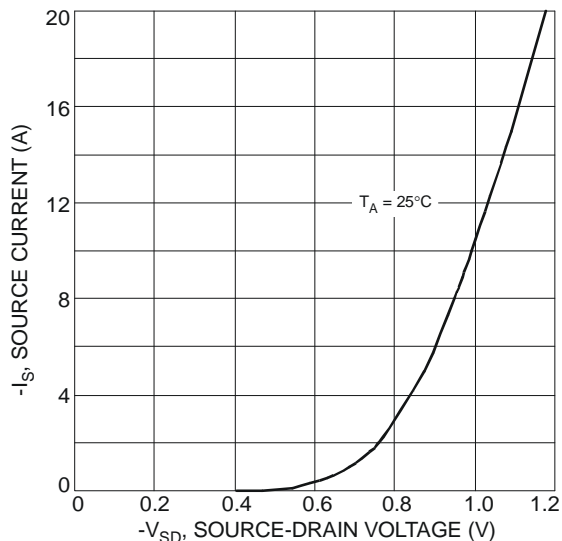
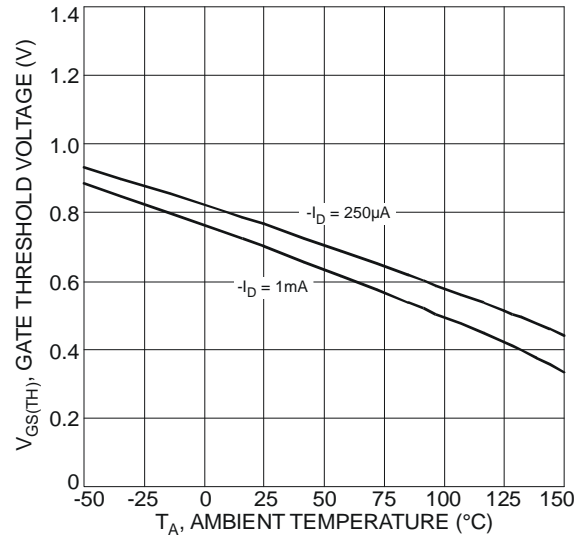
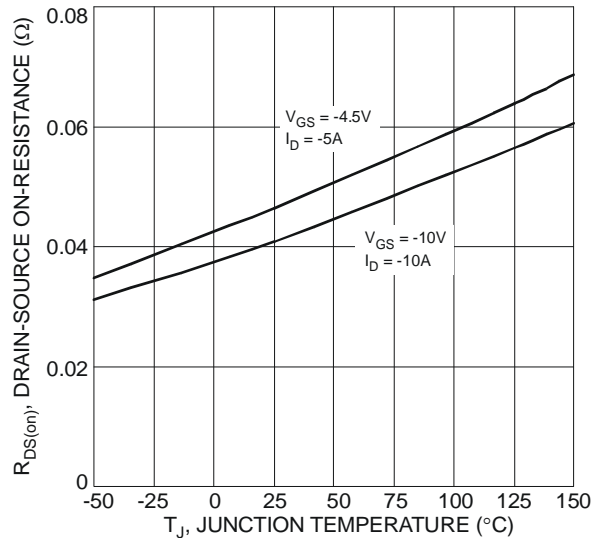
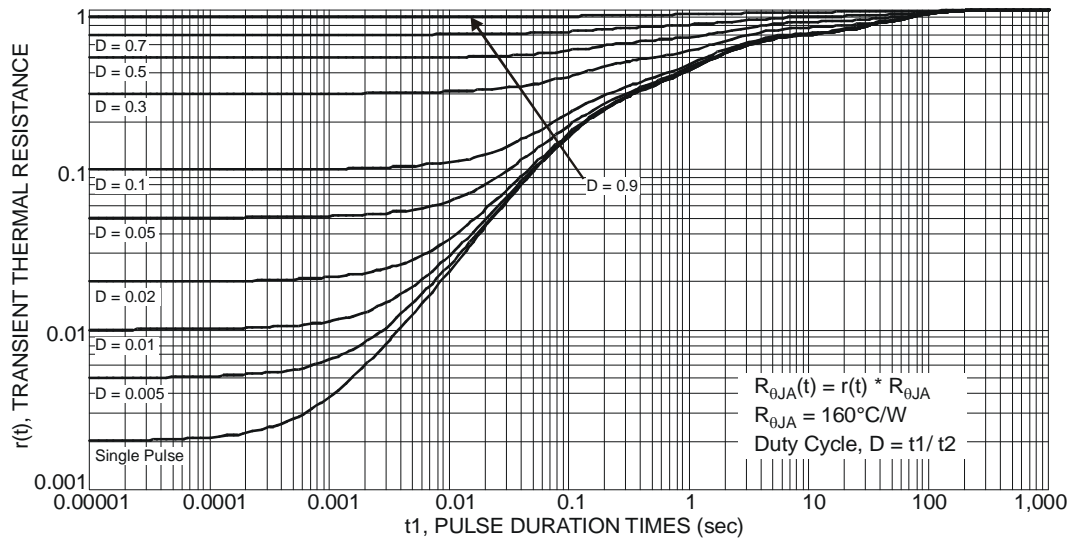


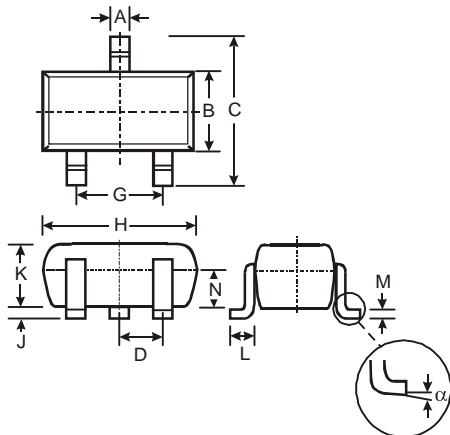
Figure 6 On-Resistance Variation with Temperature





Package Outline Dimensions

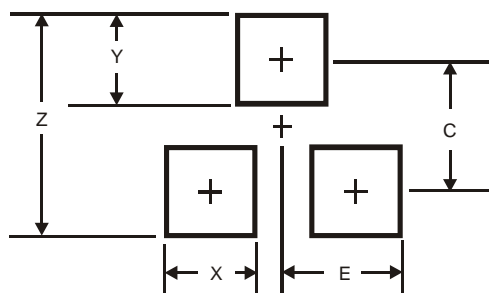
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SC59			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	-	-	0.95
G	-	-	1.90
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	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)
Z	3.4
X	0.8
Y	1.0
C	2.4
E	1.35

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