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}	±16	V
Continuous Drain Current (Note 6) V_{GS} = 10V	Steady State	T_A = +25°C T_A = +70°C	I_D	9.2 7.4	A
	t<10s	T_A = +25°C T_A = +70°C	I_D	11.9 9.5	A
Continuous Drain Current (Note 6) V_{GS} = 4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	7.5 6.0	A
	t<10s	T_A = +25°C T_A = +70°C	I_D	9.7 7.7	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)			I_{DM}	60	A
Maximum Continuous Body Diode Forward Current (Note 6)			I_S	2	A
Avalanche Current, L = 0.1mH			I_{AS}	15	A
Avalanche Energy, L = 0.1mH			E_{AS}	11	mJ

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)		P_D	1.5	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{\theta JA}$	85	°C/W
	t<10s		45	°C/W
Total Power Dissipation (Note 6)		P_D	2.1	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	74	°C/W
	t<10s		37	°C/W
Thermal Resistance, Junction to Case		$R_{\theta JC}$	13	°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 = 250µA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	µA	V_{DS} = 48V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±10	µA	V_{GS} = ±16V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	0.5	—	2.5	V	V_{DS} = V_{GS}, I_D = 250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	12.4	16	mΩ	V_{GS} = 10V, I_D = 10A
		—	15.8	21		VGS = 4.5V, ID = 6A
Diode Forward Voltage	V_{SD}	—	0.7	1.2	V	V_{GS} = 0V, I_S = 1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{ISS}	—	1,103	—	pF	V_{DS} = 30V, V_{GS} = 0V, f = 1MHz
Output Capacitance	C_{OSS}	—	251	—		
Reverse Transfer Capacitance	C_{RSS}	—	20	—		
Gate Resistance	R_G	—	1.5	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge (V_{GS} = 4.5V)	Q_G	—	8.9	—	nC	V_{DS} = 30V, I_D = 10A
Total Gate Charge (V_{GS} = 10V)	Q_G	—	18.9	—		
Gate-Source Charge	Q_{GS}	—	3.0	—		
Gate-Drain Charge	Q_{GD}	—	2.8	—		
Turn-On Delay Time	$t_{D(ON)}$	—	4.1	—	ns	V_{GS} = 10V, V_{DS} = 30V, R_G = 6Ω, I_D = 10A
Turn-On Rise Time	t_R	—	7.1	—		
Turn-Off Delay Time	$t_{D(OFF)}$	—	19.5	—		
Turn-Off Fall Time	t_F	—	8.6	—		
Reverse Recovery Time	T_{RR}	—	21.2	—	ns	I_F = 10A, di/dt = 100A/µs
Reverse Recovery Charge	Q_{RR}	—	13.2	—	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.

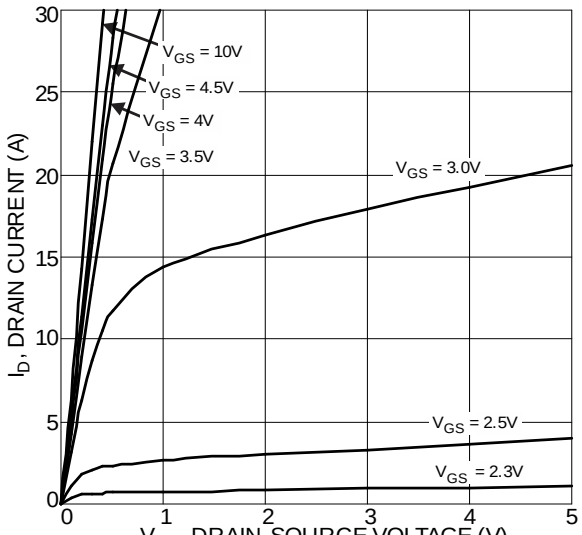


Figure 1 Typical Output Characteristic

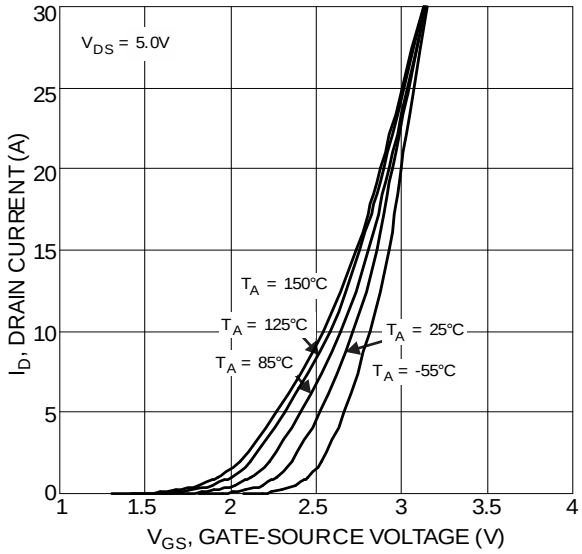


Figure 2 Typical Transfer Characteristics

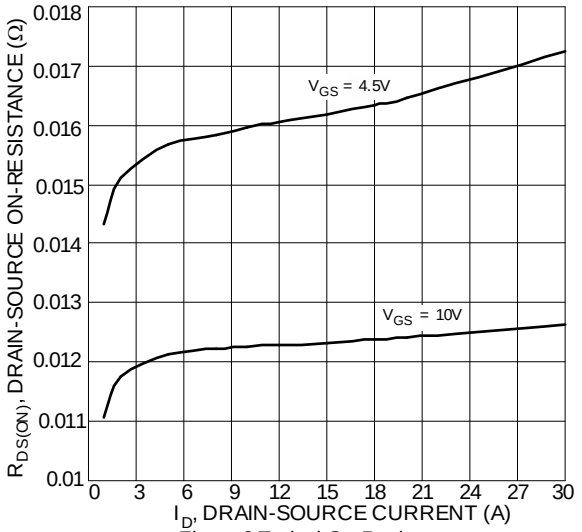


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

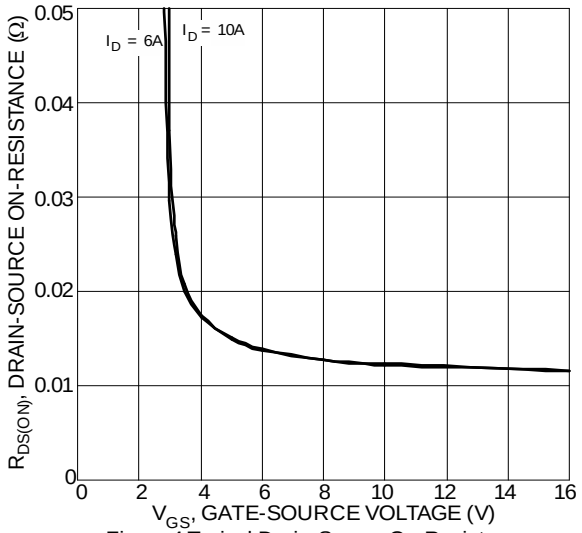


Figure 4 Typical Drain-Source On-Resistance vs. Gate-Source Voltage

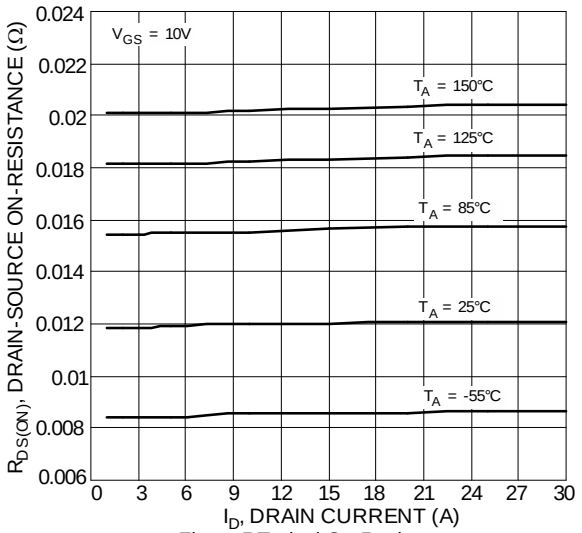


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

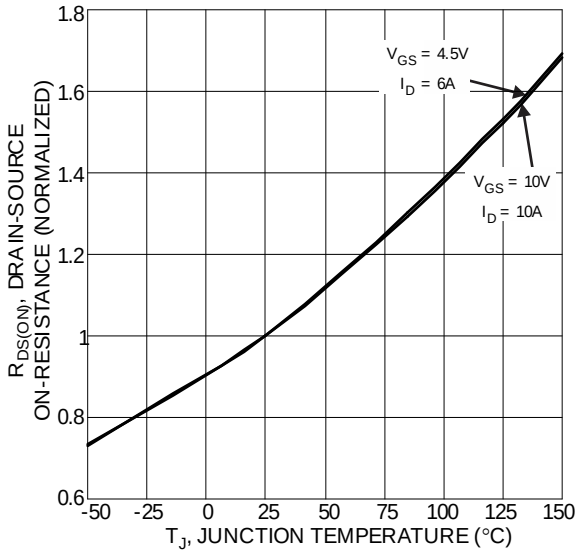


Figure 6 On-Resistance Variation with Temperature

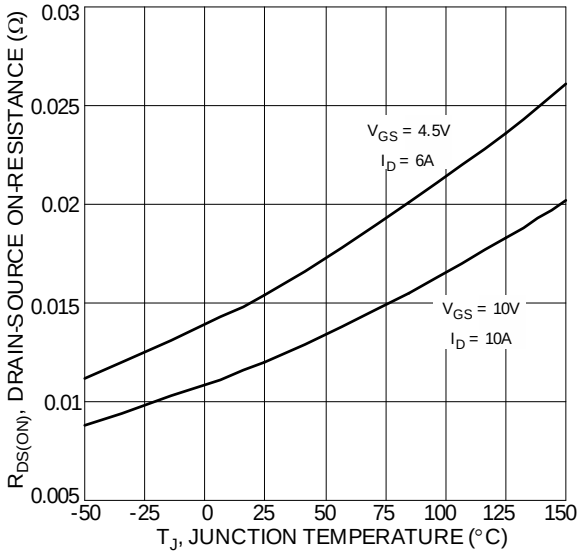


Figure 7 On-Resistance Variation with Temperature

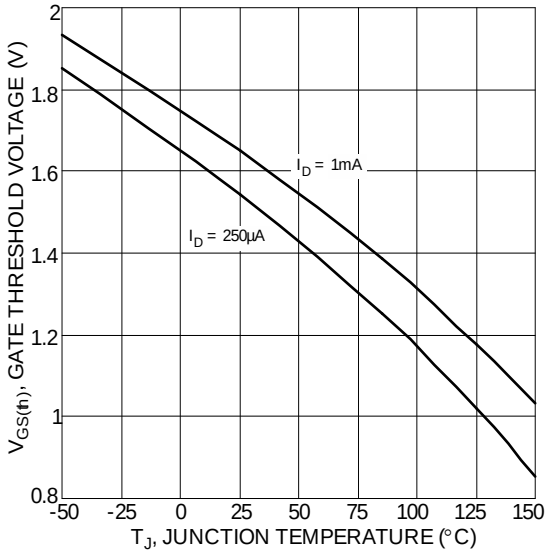


Figure 8 Gate Threshold Variation vs. Ambient Temperature

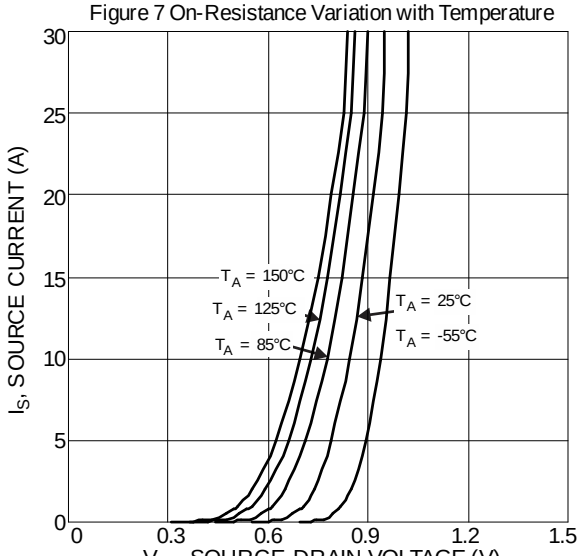


Figure 9 Diode Forward Voltage vs. Current

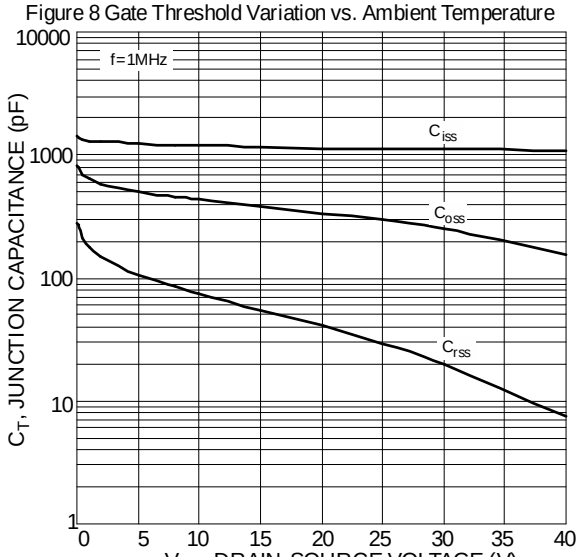


Figure 10 Typical Junction Capacitance

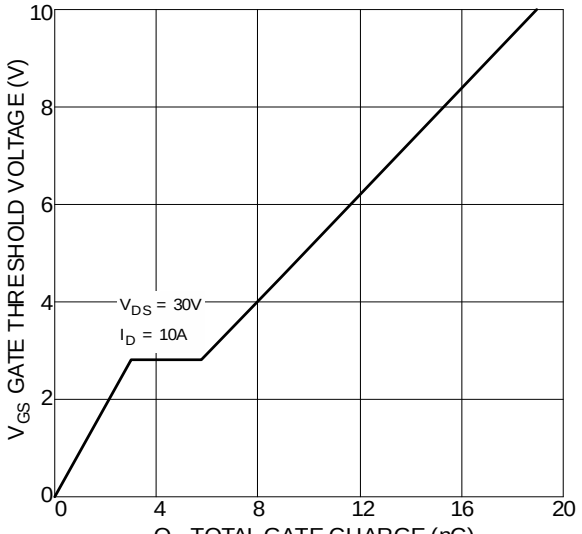


Figure 11 Gate Charge

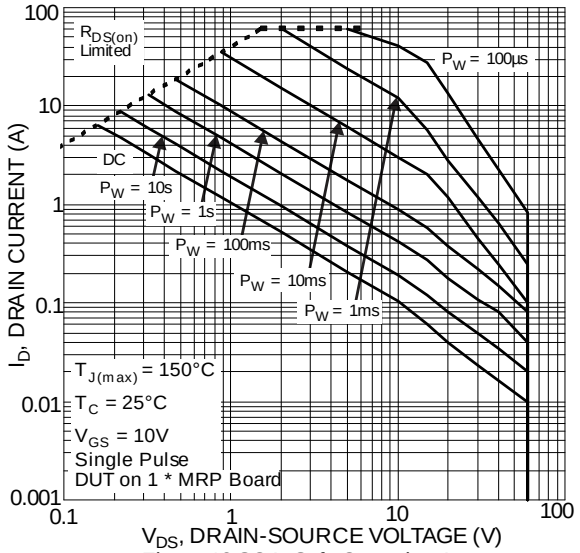


Figure 12 SOA, Safe Operation Area

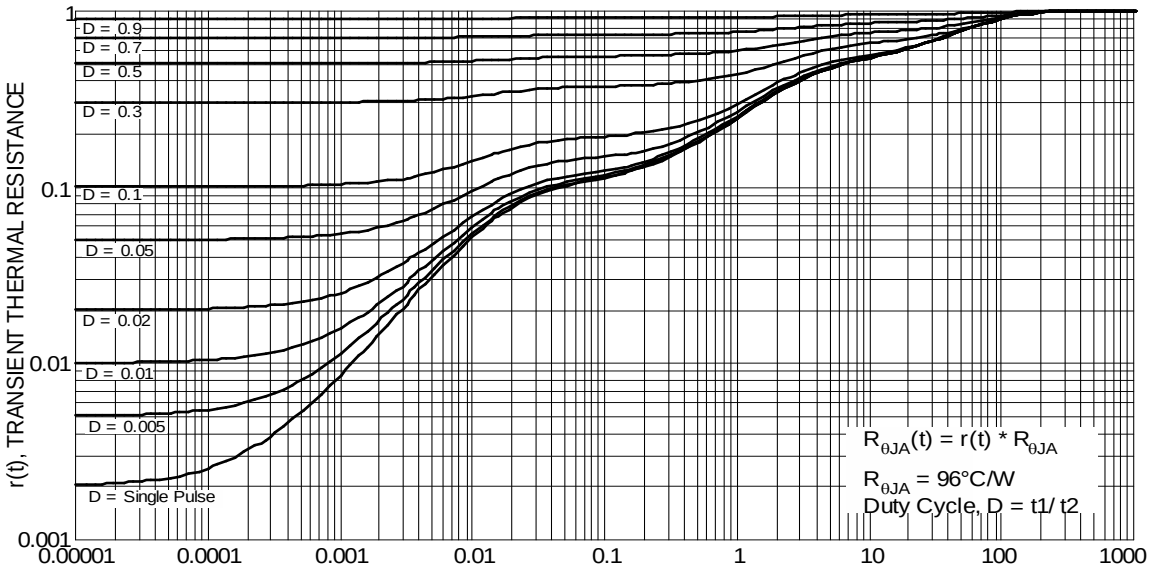
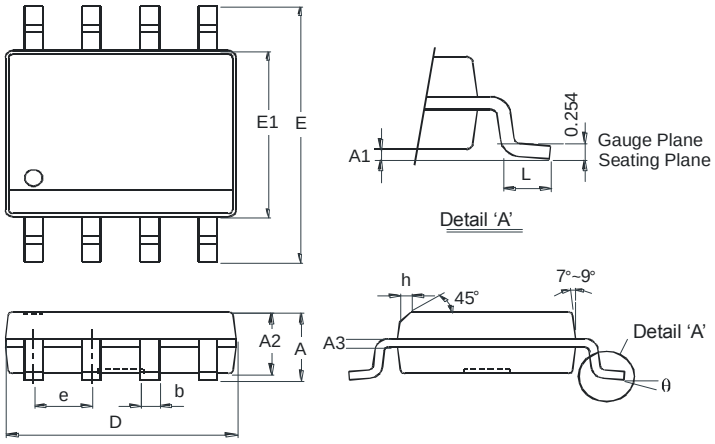


Figure 13 Transient Thermal Resistance

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SO-8

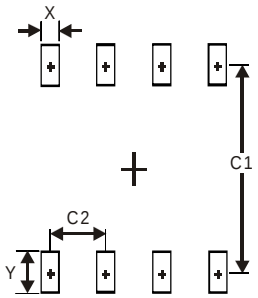


SO-8		
Dim	**Min**	**Max**
A	–	1.75
A1	0.10	0.20
A2	1.30	1.50
A3	0.15	0.25
b	0.3	0.5
D	4.85	4.95
E	5.90	6.10
E1	3.85	3.95
e	1.27 Typ	
h	–	0.35
L	0.62	0.82
θ	0°	8°
All Dimensions in mm		

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SO-8



Dimensions	Value (in mm)
X	0.60
Y	1.55
C1	5.4
C2	1.27

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