NEW PRODUCT

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

Characteristic			Symbol	Value_Q1	Value_Q2	Units
Drain-Source Voltage			V_{DSS}	30	-30	V
Gate-Source Voltage			V_{GSS}	±20	±20	V
Continuous Drain Current (Note 6) V_{GS} = 10V	Steady State	T_A = +25°C T_A = +70°C	I_D	0.65 0.50	-0.45 -0.36	A
Maximum Continuous Body Diode Forward Current (Note 6)			I_S	0.4	-0.35	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)			I_{DM}	4	-3	A

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)		P_D	0.31	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{\theta JA}$	406	°C/W
Total Power Dissipation (Note 6)		P_D	0.39	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	319	°C/W
Thermal Resistance, Junction to Case		$R_{\theta JC}$	126	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics – N Channel – Q1 (@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	I_{DSS}	-	-	1	µA	V_{DS} = 24V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	-	-	±10	µA	V_{GS} = ±16V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	0.8	-	1.6	V	V_{DS} = V_{GS}, I_D = 250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	0.2	0.4	Ω	V_{GS} = 10V, I_D = 0.59A
		-	0.3	0.7		V_{GS} = 4.5V, I_D = 0.2A
Diode Forward Voltage	V_{SD}	-	0.8	1.2	V	V_{GS} = 0V, I_S = 0.23A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	-	55	-	pF	V_{DS} = 15V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	-	8.5	-	pF	
Reverse Transfer Capacitance	C_{rss}	-	6.5	-	pF	
Gate Resistance	R_g	-	92	-	Ω	V_{DS} = V_{GS} = 0V, f = 1.0MHz
Total Gate Charge (V_{GS} = 4.5V)	Q_g	-	0.6	-	nC	V_{DS} = 10V, I_D = 250mA
Total Gate Charge (V_{GS} = 10V)	Q_g	-	1.4	-	nC	
Gate-Source Charge	Q_{gs}	-	0.2	-	nC	
Gate-Drain Charge	Q_{gd}	-	0.1	-	nC	
Turn-On Delay Time	$t_{D(ON)}$	-	3.8	-	ns	V_{GS} = 10V, V_{DS} = 30V, I_D = 100mA, R_G = 1Ω
Turn-On Rise Time	t_R	-	3.5	-	ns	
Turn-Off Delay Time	$t_{D(OFF)}$	-	25.2	-	ns	
Turn-Off Fall Time	t_F	-	18.8	-	ns	

NEW PRODUCT

Electrical Characteristics – P Channel – Q2 (@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	I_{DSS}	-	-	-1	µA	V_{DS} = -24V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	-	-	±10	µA	V_{GS} = ±16V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	-1	-	-2.6	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	0.36	0.9	Ω	V_{GS} = -10V, I_D = -0.42A
		-	0.57	1.7		V_{GS} = -4.5V, I_D = -0.2A
Diode Forward Voltage	V_{SD}	-	-0.8	-1.2	V	V_{GS} = 0V, I_S = -0.23A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	-	54	-	pF	V_{DS} = -15V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	-	10	-	pF	
Reverse Transfer Capacitance	C_{rss}	-	8.3	-	pF	
Gate Resistance	R_g	-	240	-	Ω	V_{DS} = V_{GS} = 0V, f = 1.0MHz
Total Gate Charge (V_{GS} = -4.5V)	Q_g	-	0.6	-	nC	V_{DS} = -10V, I_D = -0.24A
Total Gate Charge (V_{GS} = -10V)	Q_g	-	1.3	-	nC	
Gate-Source Charge	Q_{gs}	-	0.2	-	nC	
Gate-Drain Charge	Q_{gd}	-	0.2	-	nC	
Turn-On Delay Time	$t_{D(ON)}$	-	5.7	-	ns	V_{GS} = -10V, V_{DD} = -15V, I_D = -0.5A, R_G = 1Ω
Turn-On Rise Time	t_R	-	8.8	-	ns	
Turn-Off Delay Time	$t_{D(OFF)}$	-	35	-	ns	
Turn-Off Fall Time	t_F	-	19	-	ns	

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

NEW PRODUCT

Typical Characteristics - N-CHANNEL

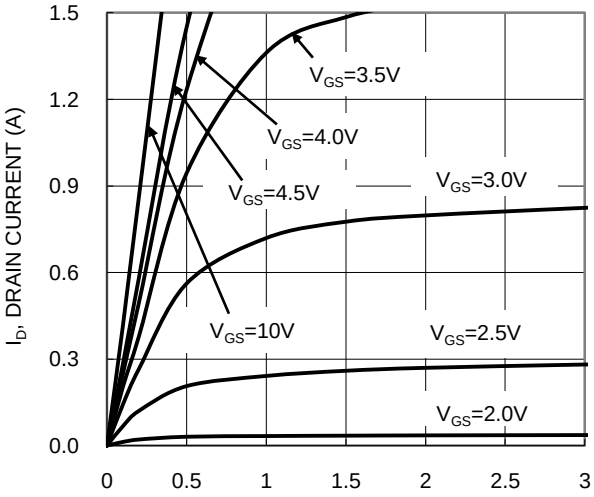

Figure 1. Typical Output Characteristic

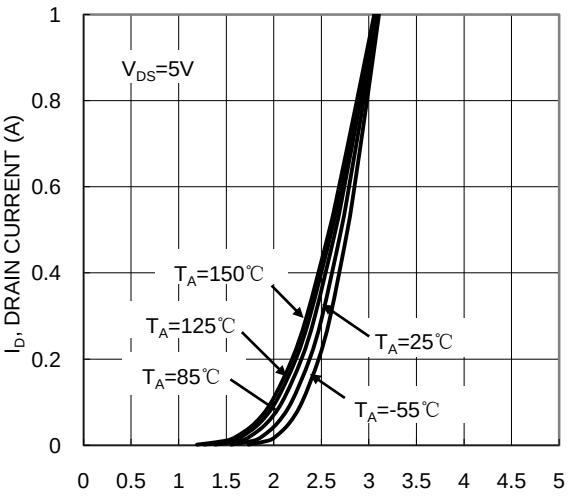

Figure 2. Typical Transfer Characteristic

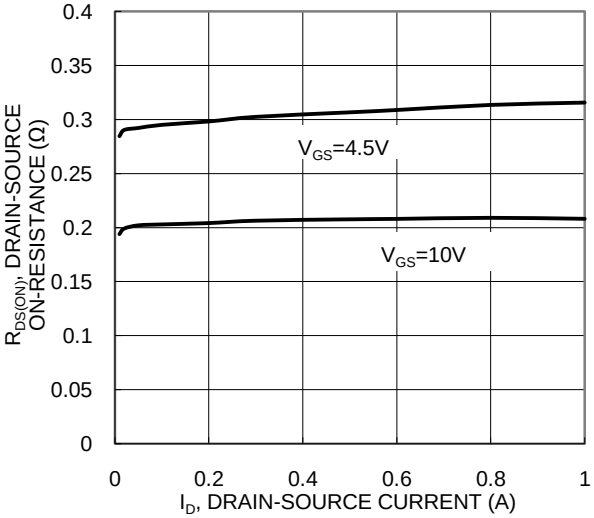

Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

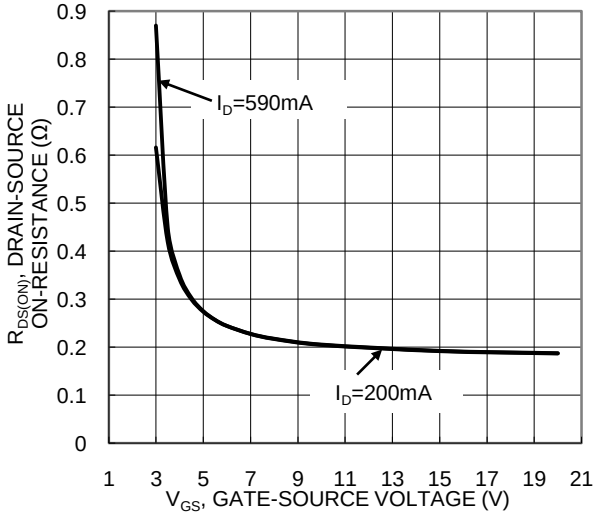

Figure 4. Typical Transfer Characteristic

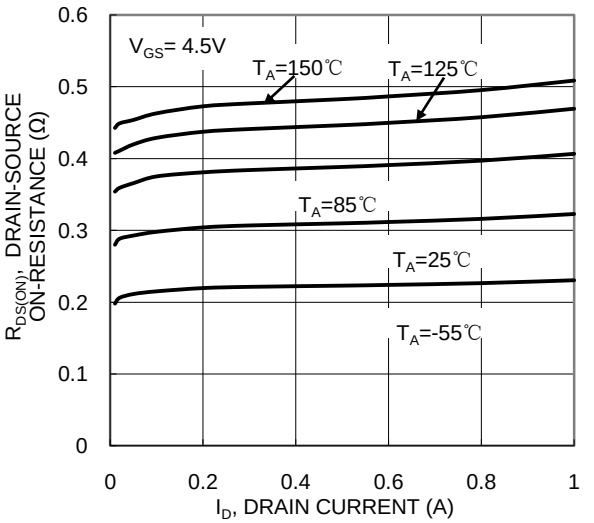

Figure 5. Typical On-Resistance vs. Drain Current and Temperature

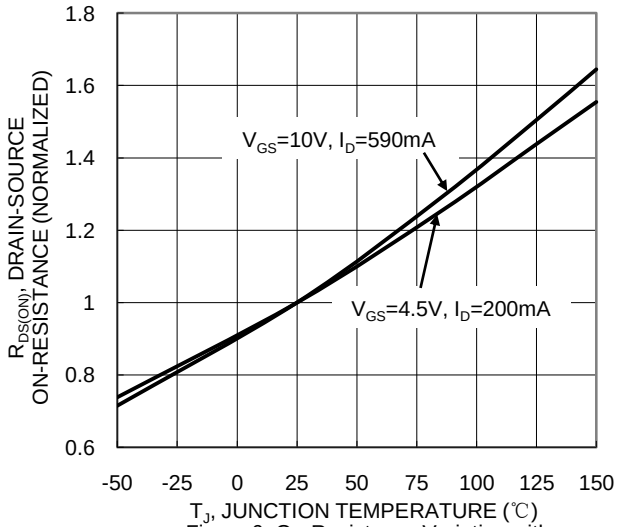

Figure 6. On-Resistance Variation with Temperature

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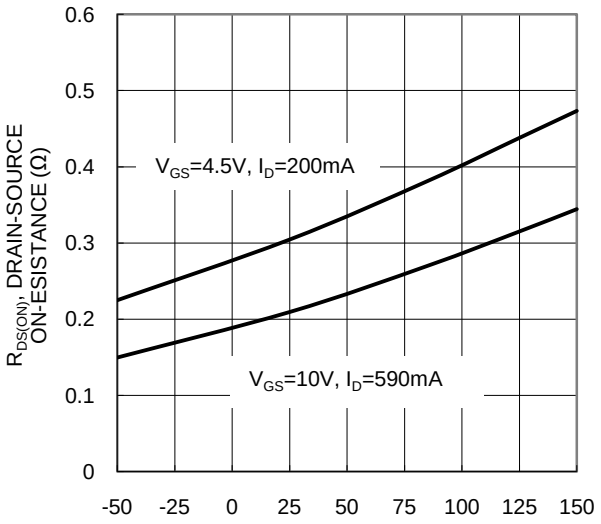

Figure 7. On-Resistance Variation with Temperature

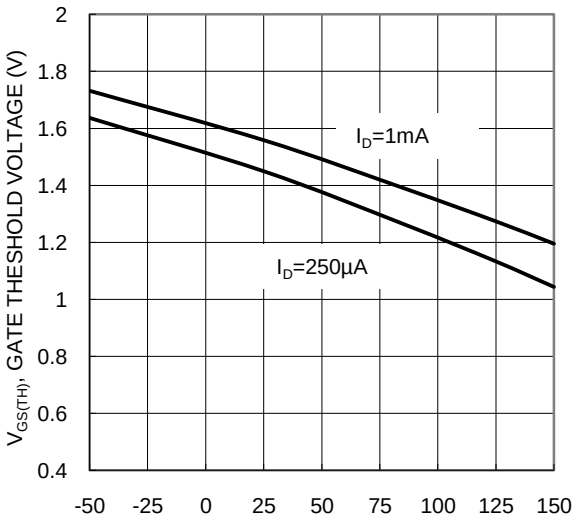

Figure 8. Gate Theshold Variation vs. Junction Temperature

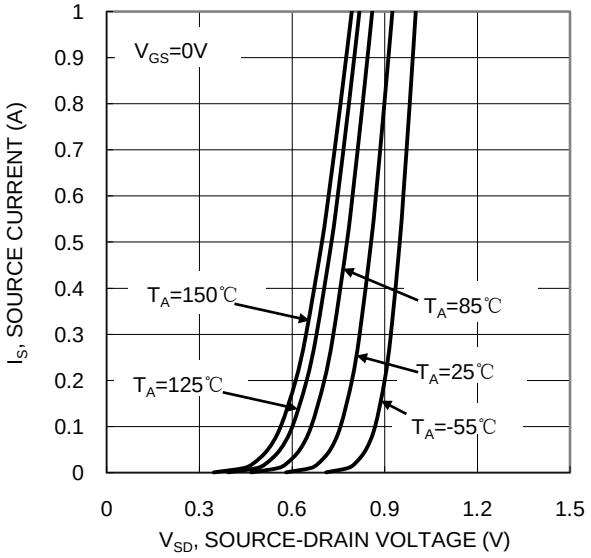

Figure 9. Diode Forward Voltage vs. Current

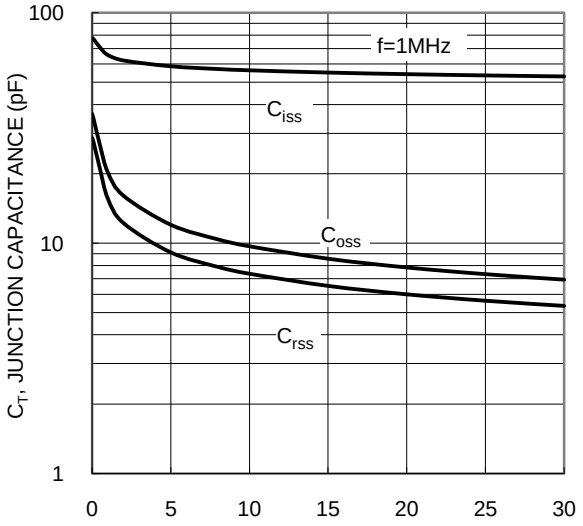

Figure 10. Typical Junction Capacitance

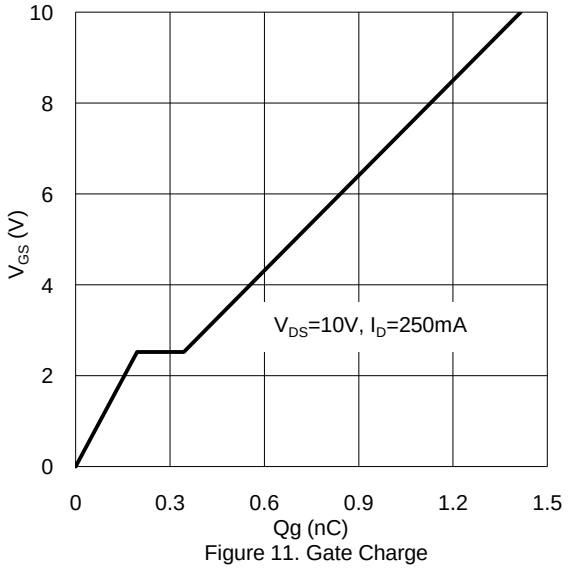

Figure 11. Gate Charge

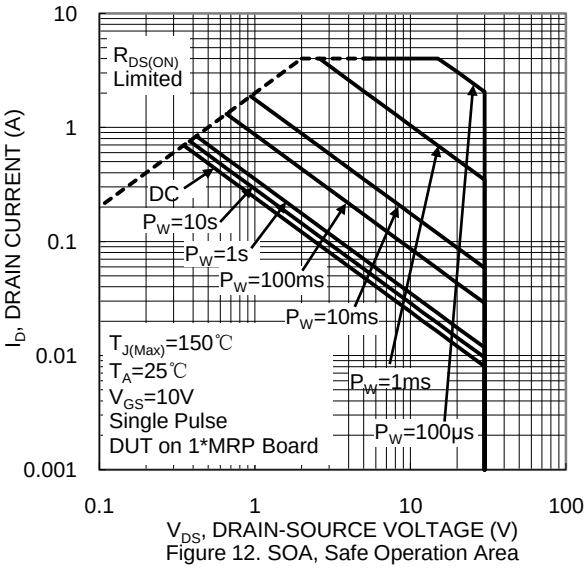

Figure 12. SOA, Safe Operation Area

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Typical Characteristics - P-CHANNEL

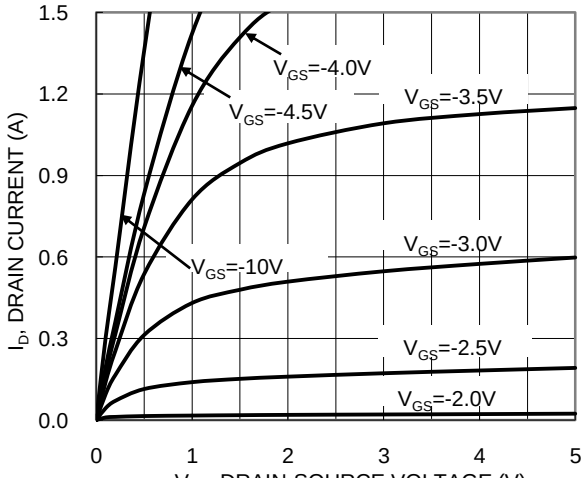

Figure 13. Typical Output Characteristic

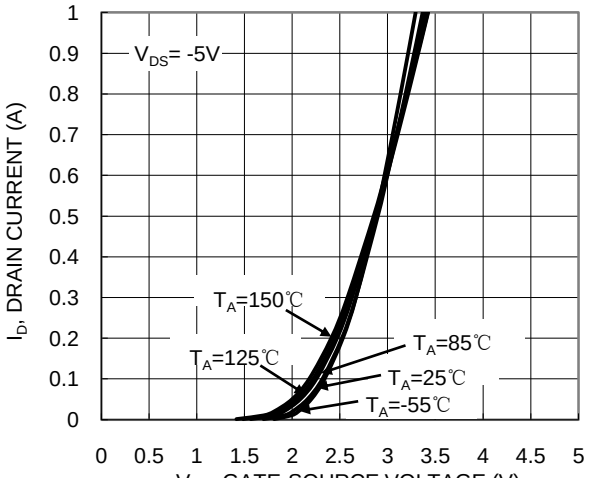

Figure 14. Typical Transfer Characteristic

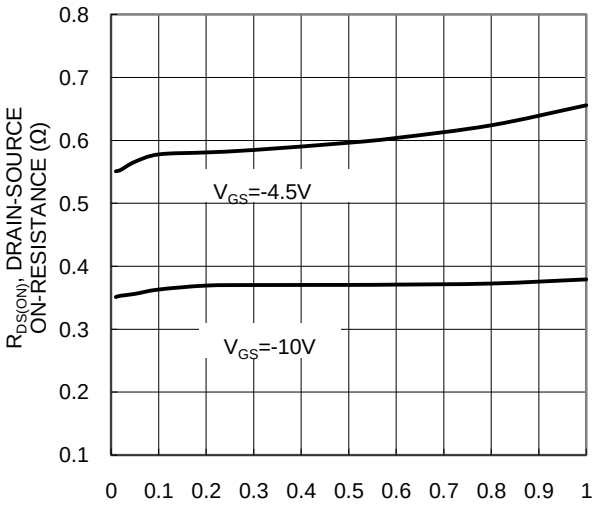

Figure 15. Typical On-Resistance vs. Drain Current and Gate Voltage

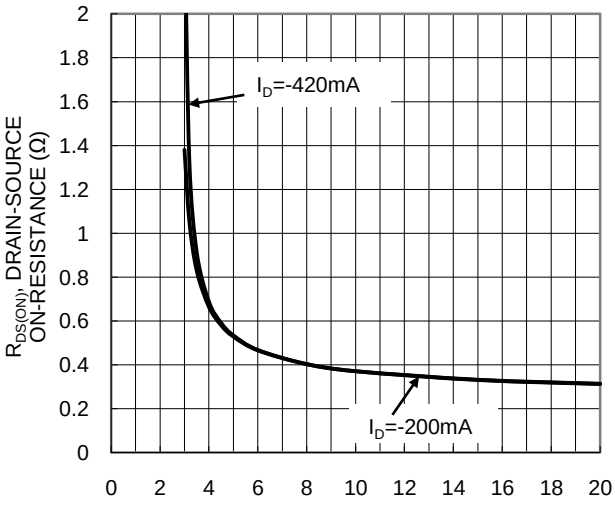

Figure 16. Typical Transfer Characteristic

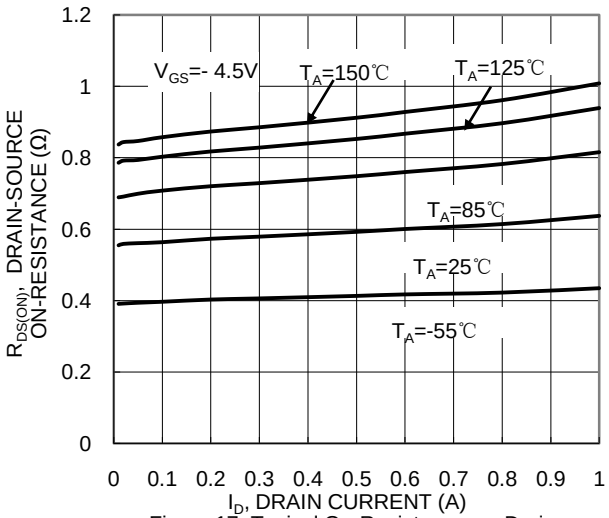

Figure 17. Typical On-Resistance vs. Drain Current and Temperature

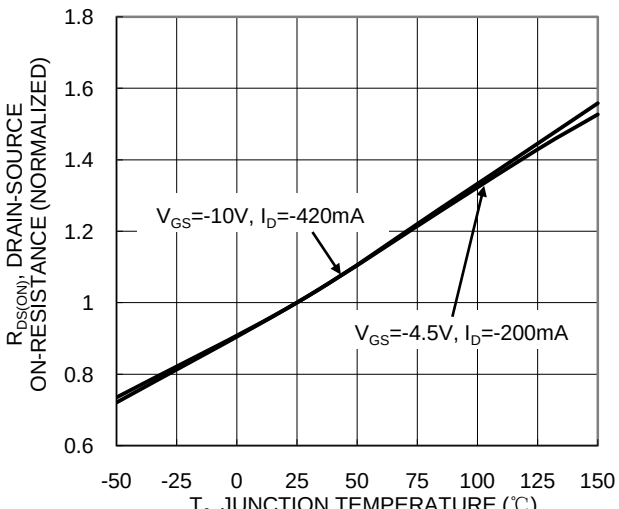

Figure 18. On-Resistance Variation with Temperature

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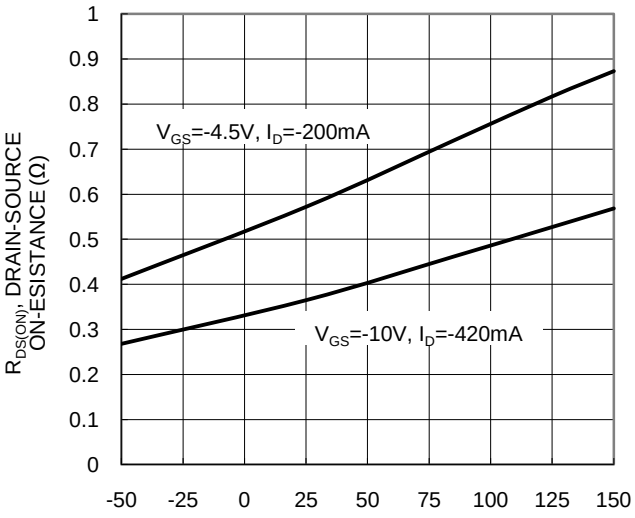

Figure 19. On-Resistance Variation with Temperature

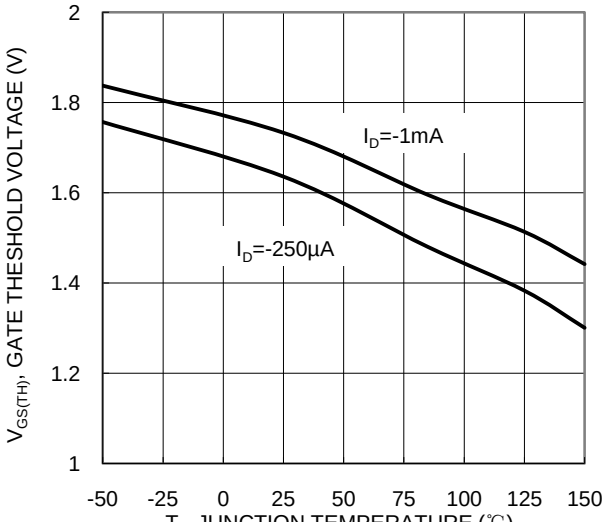

Figure 20. Gate Theshold Variation vs. Junction Temperature

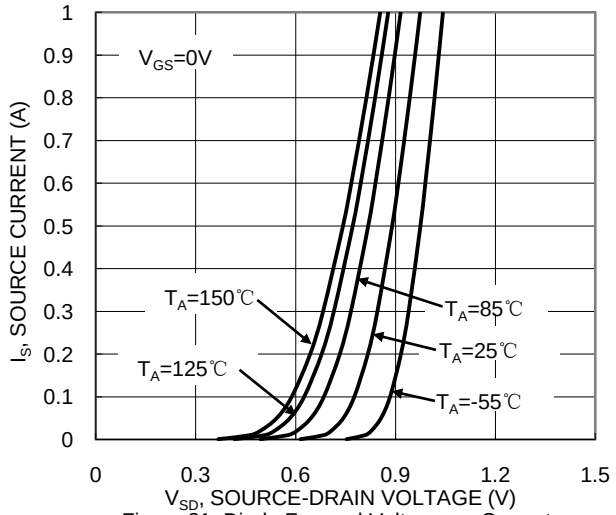

Figure 21. Diode Forward Voltage vs. Current

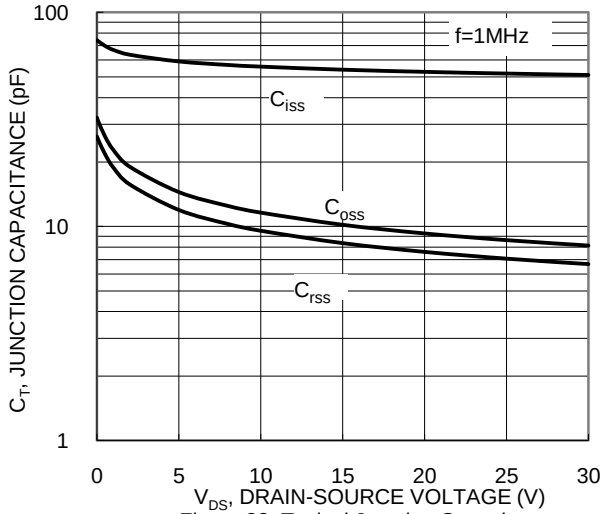

Figure 22. Typical Junction Capacitance

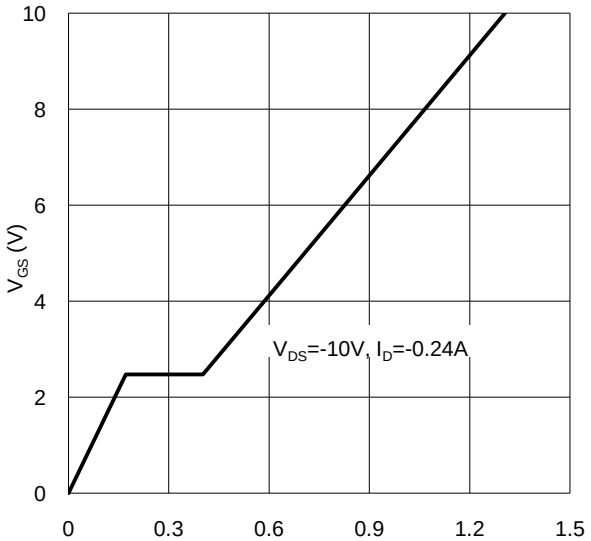

Figure 23. Gate Charge

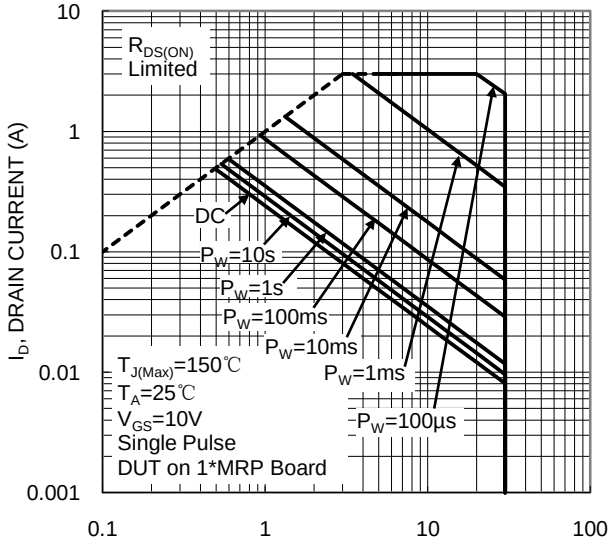

Figure 24. SOA, Safe Operation Area

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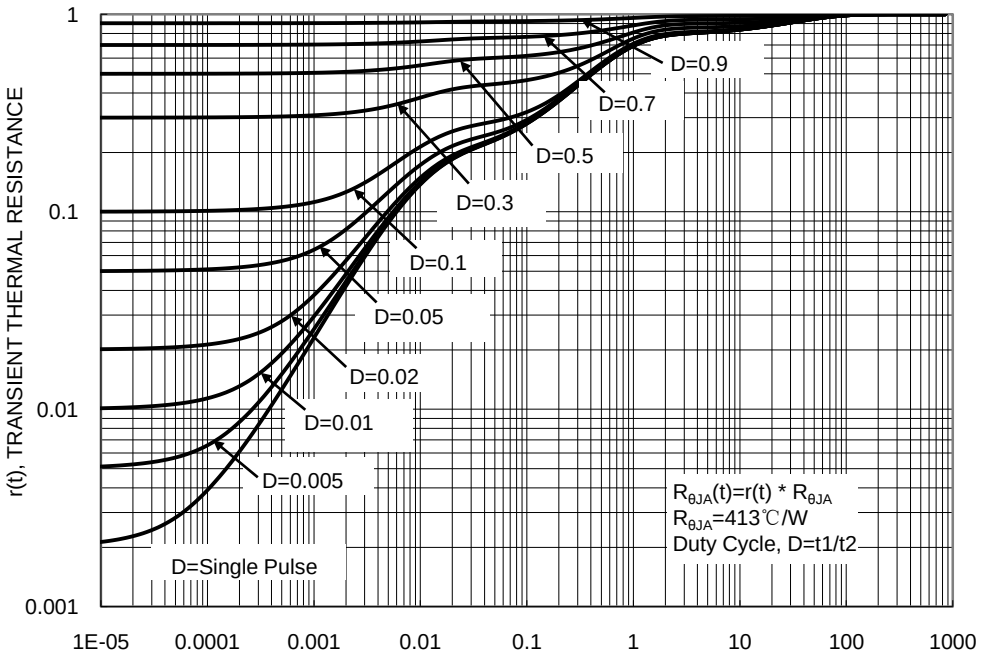
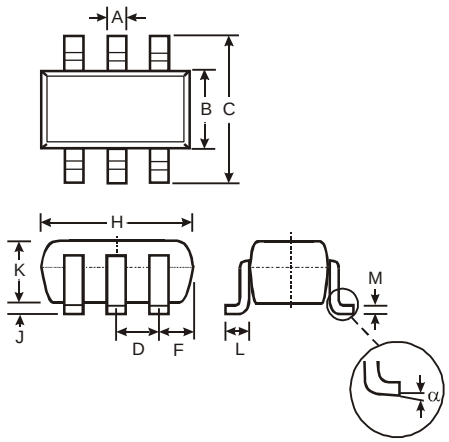


Figure 25. Transient Thermal Resistance

Package Outline Dimensions

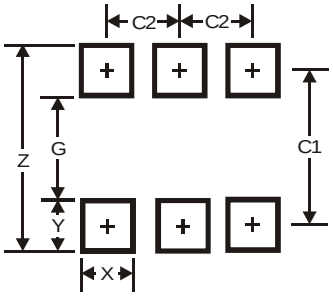
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf the for latest version.



SOT363			
Dim	**Min**	**Max**	**Typ**
A	0.10	0.30	0.25
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	0.65 Typ		
F	0.40	0.45	0.425
H	1.80	2.20	2.15
J	0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.22	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

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



Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C1	1.9
C2	0.65

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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