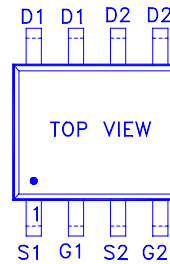
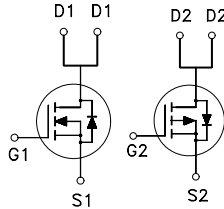


**PRODUCT SUMMARY**

	$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
N-Channel	30	27.5m	7A
P-Channel	-30	45m	-5A



G : GATE  
D : DRAIN  
S : SOURCE

**ABSOLUTE MAXIMUM RATINGS ( $T_c = 25\text{ }^\circ\text{C}$  Unless Otherwise Noted)**

PARAMETERS/TEST CONDITIONS		SYMBOL	N-Channel	P-Channel	UNITS
Drain-Source Voltage		$V_{DS}$	30	-30	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	$\pm 20$	V
Continuous Drain Current	$T_c = 25\text{ }^\circ\text{C}$	$I_D$	7	-5	A
	$T_c = 70\text{ }^\circ\text{C}$		6	-4	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	20	-20	
Power Dissipation	$T_c = 25\text{ }^\circ\text{C}$	$P_D$	2		W
	$T_c = 70\text{ }^\circ\text{C}$		1.3		
Junction & Storage Temperature Range		$T_j, T_{stg}$	-55 to 150		$^\circ\text{C}$

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		62.5	$^\circ\text{C} / \text{W}$

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Duty cycle  $\leq 1\%$

**ELECTRICAL CHARACTERISTICS ( $T_c = 25\text{ }^\circ\text{C}$ , Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
<b>STATIC</b>							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	N-Ch	30		V	
		$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$	P-Ch	-30			
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	N-Ch	1	1.5		2.5
		$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	P-Ch	-1	-1.5		-2.5
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	N-Ch			$\pm 100$	
		$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	P-Ch			$\pm 100$	

Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$	N-Ch		1	$\mu A$	
		$V_{DS} = -24V, V_{GS} = 0V$	P-Ch		-1		
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$	N-Ch		10		
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 55^\circ C$	P-Ch		-10		
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	N-Ch	20		A	
		$V_{DS} = -5V, V_{GS} = -10V$	P-Ch	-20			
Drain-Source Resistance <sup>1</sup>	On-State $R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$	N-Ch		30	40	m
		$V_{GS} = -4.5V, I_D = -4A$	P-Ch		62	80	
		$V_{GS} = 10V, I_D = 7A$	N-Ch		20.5	27.5	
		$V_{GS} = -10V, I_D = -5A$	P-Ch		37.5	45	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 7A$	N-Ch		16		S
		$V_{DS} = -5V, I_D = -5A$	P-Ch		13		

DYNAMIC							
Input Capacitance	$C_{iss}$	N-Channel	N-Ch		680		$pF$
		P-Channel	P-Ch		780		
Output Capacitance	$C_{oss}$	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$ N-Channel	N-Ch		105		$pF$
		P-Channel	P-Ch		145		
Reverse Transfer Capacitance	$C_{rss}$	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$ N-Channel	N-Ch		75		$pF$
		P-Channel	P-Ch		79		
Total Gate Charge <sup>2</sup>	$Q_g$	N-Channel $V_{DS} = 0.5 \cdot V_{(BR)DSS}, V_{GS} = 10V,$ $I_D = 7A$	N-Ch		14		nC
		P-Channel	P-Ch		15.1		
Gate-Source Charge <sup>2</sup>	$Q_{gs}$	N-Channel	N-Ch		1.9		nC
		P-Channel	P-Ch		2.1		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$	$V_{DS} = 0.5 \cdot V_{(BR)DSS}, V_{GS} = -10V,$ $I_D = -5A$	N-Ch		3.3		nC
		P-Channel	P-Ch		4.0		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	N-Channel	N-Ch		4.6	7	nS
		P-Channel	P-Ch		7.7	11.5	
Rise Time <sup>2</sup>	$t_r$	$V_{DD} = 10V$ $I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 3$	N-Ch		4	6	nS
		P-Channel	P-Ch		5.7	8.5	
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$	P-Channel	N-Ch		20	30	nS
			P-Ch		20	30	
Fall Time <sup>2</sup>	$t_f$	$V_{DD} = -10V$ $I_D \cong -1A, V_{GS} = -10V, R_{GEN} = 3$	N-Ch		5	8	nS
			P-Ch		9.5	14	

**SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>C</sub> = 25 °C)**

Continuous Current	I <sub>S</sub>		N-Ch		1.3	A
			P-Ch		-1.3	
Pulsed Current <sup>3</sup>	I <sub>SM</sub>		N-Ch		2.6	
			P-Ch		-2.6	
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 1A, V <sub>GS</sub> = 0V	N-Ch		1	V
		I <sub>F</sub> = -1A, V <sub>GS</sub> = 0V	P-Ch		-1	

<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

<sup>2</sup>Independent of operating temperature.

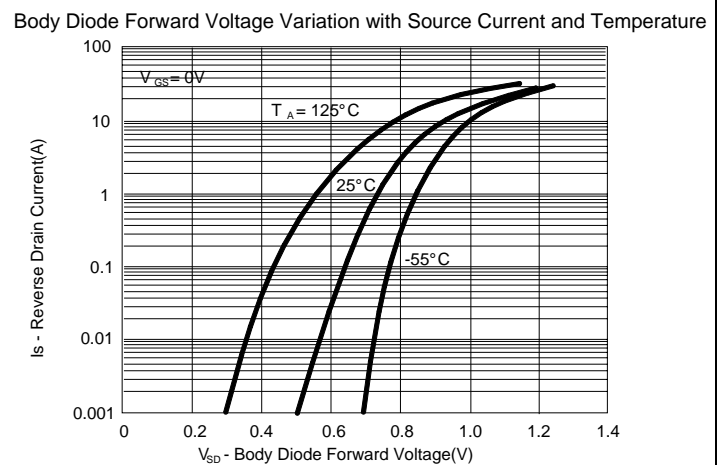
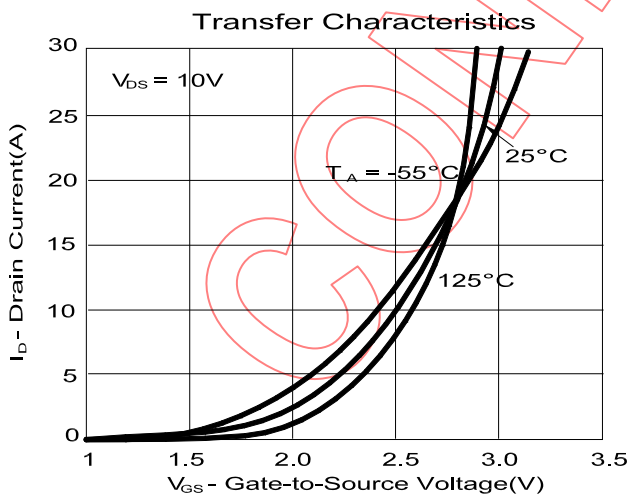
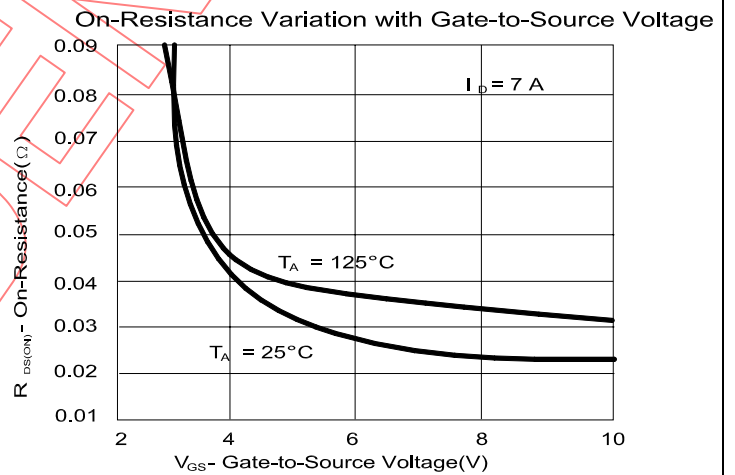
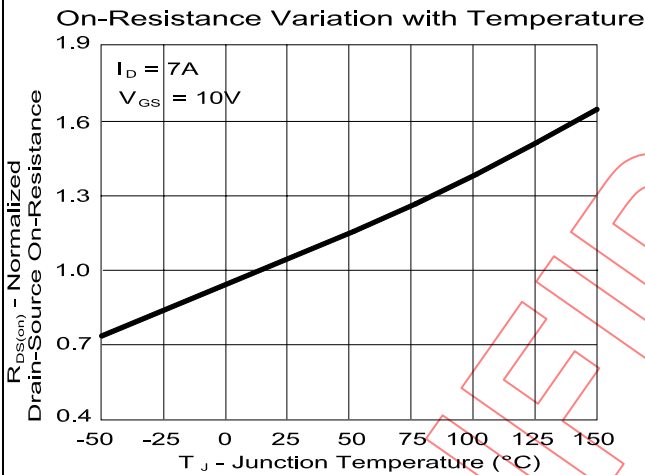
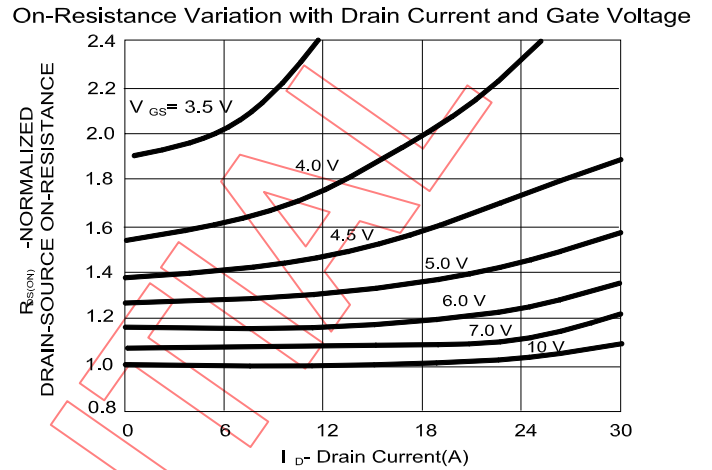
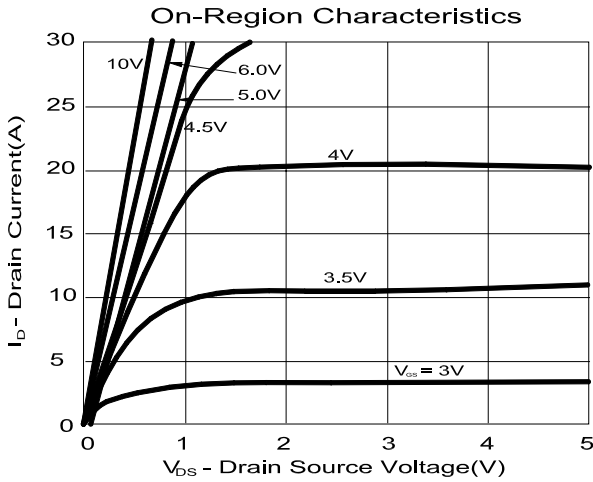
<sup>3</sup>Pulse width limited by maximum junction temperature.

**REMARK: THE PRODUCT MARKED WITH “P5003QVG”, DATE CODE or LOT #**

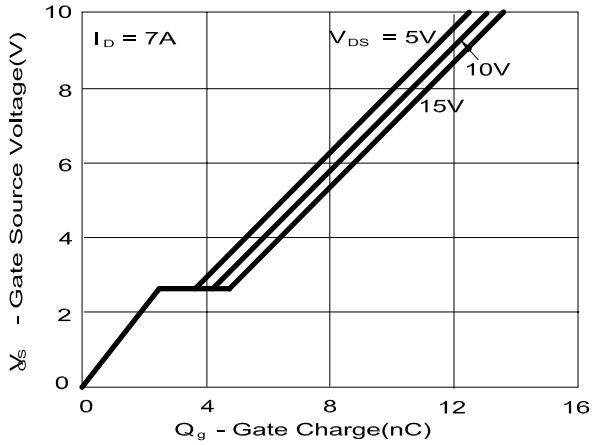
**Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.**

CONFIDENTIAL

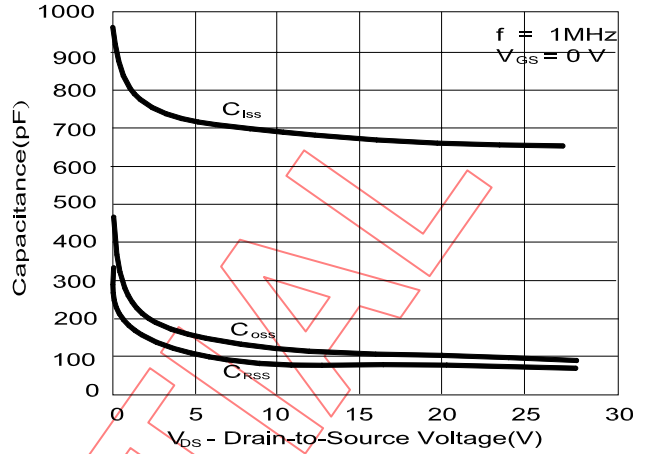
**N-CHANNEL**



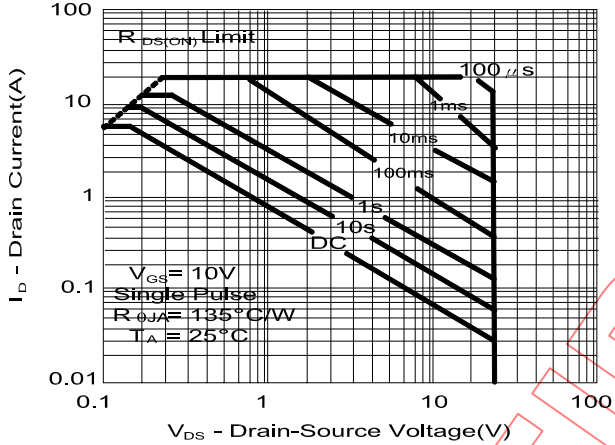
**Gate Charge Characteristics**



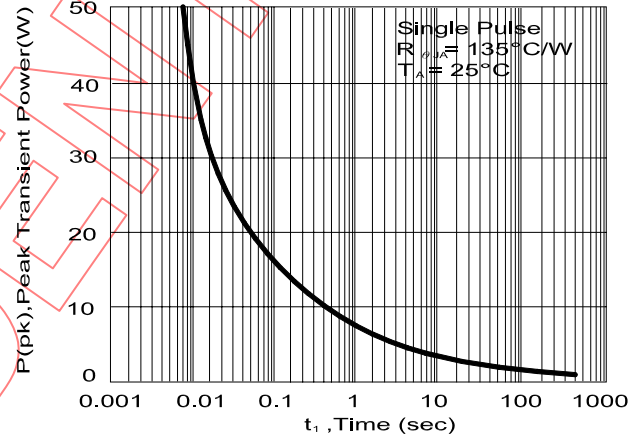
**Capacitance Characteristics**



**Maximum Safe Operating Area**



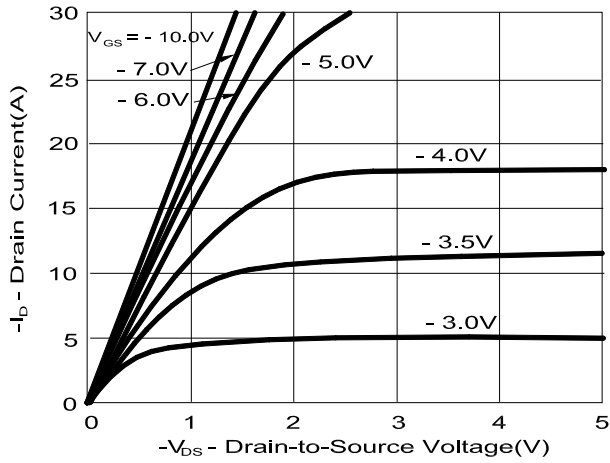
**Single Pulse Maximum Power Dissipation**



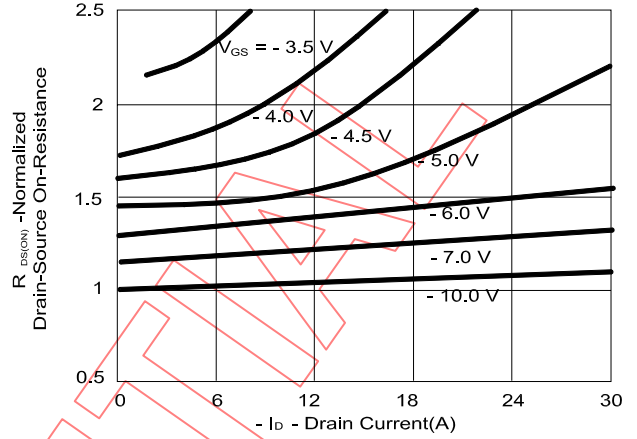
CONFIDENTIAL

**P-CHANNEL**

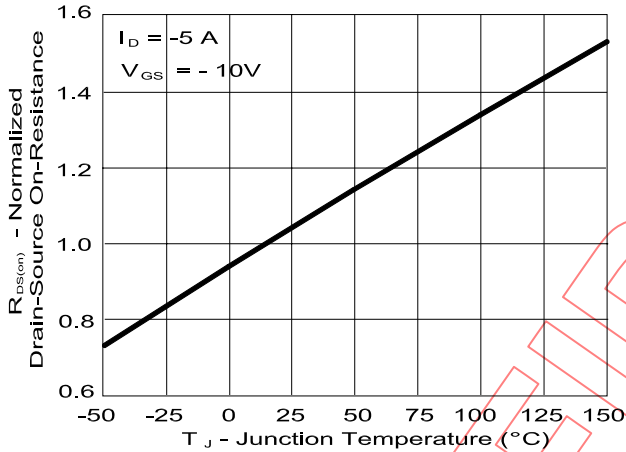
On-Region Characteristics



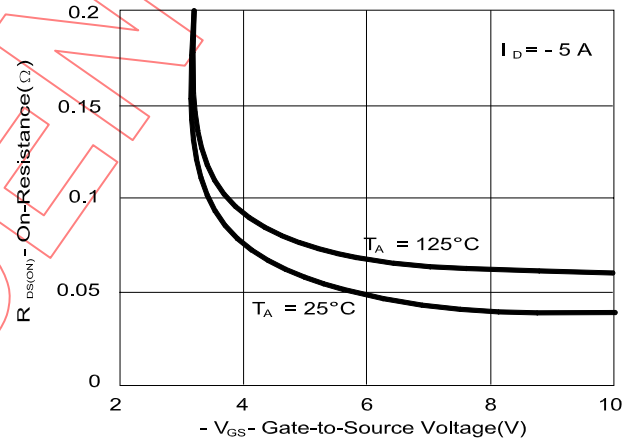
On-Resistance Variation with Drain Current and Gate Voltage



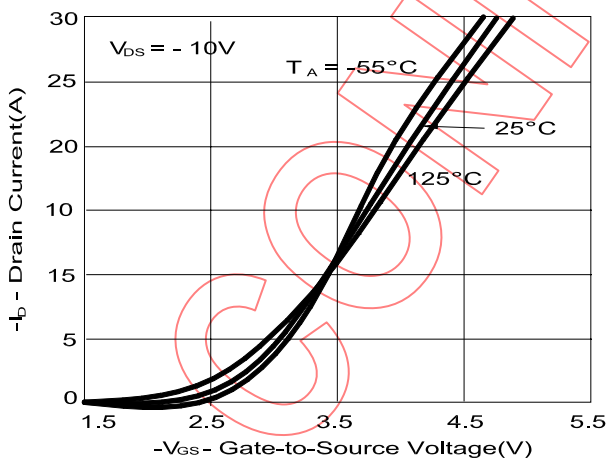
On-Resistance Variation with Temperature



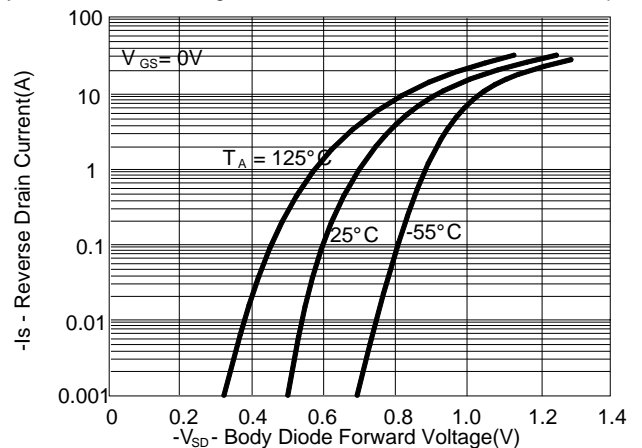
On-Resistance Variation with Gate-to-Source Voltage



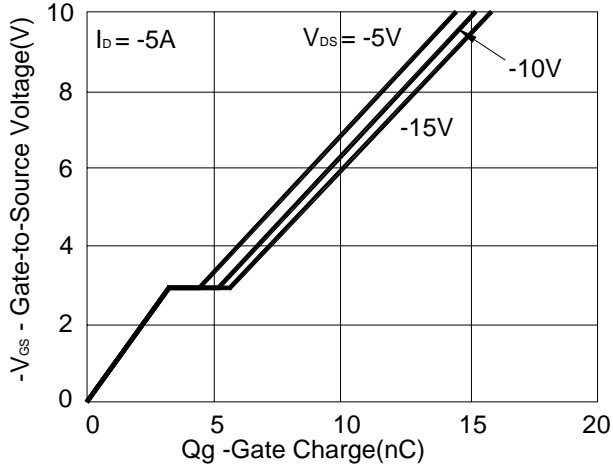
Transfer Characteristics



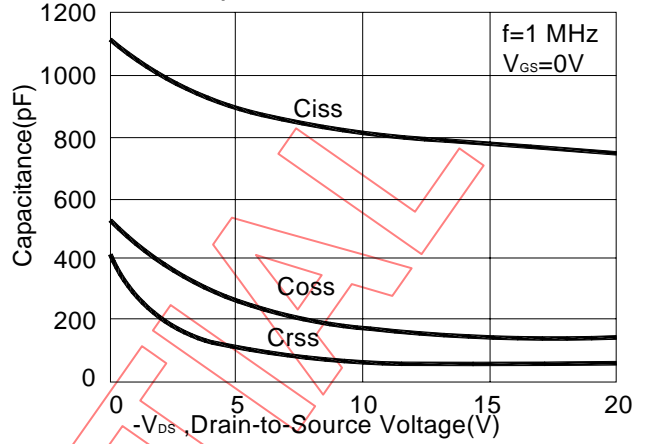
Body Diode Forward Voltage Variation with Source Current and Temperature



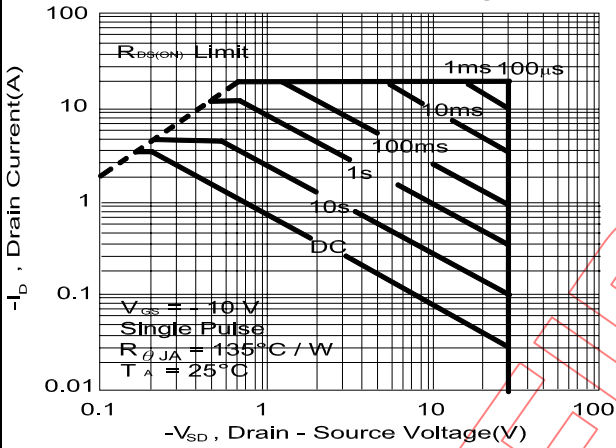
**Gate Charge Characteristics**



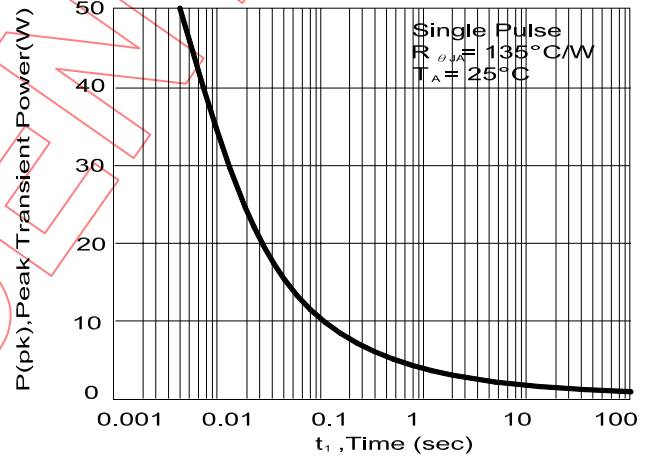
**Capacitance Characteristics**



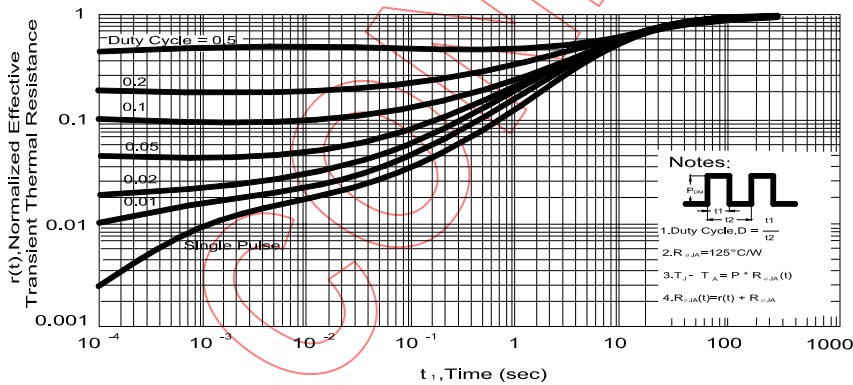
**Maximum Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**



**SOIC-8(D) MECHANICAL DATA**

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8	4.9	5.0	H	0.5	0.715	0.83
B	3.8	3.9	4.0	I	0.18	0.254	0.25
C	5.8	6.0	6.2	J		0.22	
D	0.38	0.445	0.51	K	0°	4°	8°
E		1.27		L			
F	1.35	1.55	1.75	M			
G	0.1	0.175	0.25	N			

