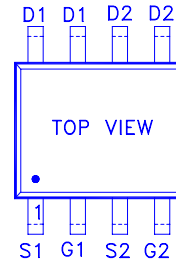
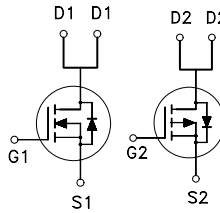


PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
N-Channel	30	25m Ω	7A
P-Channel	-30	35m Ω	-6A



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}	±20	±20	V
Continuous Drain Current	T _C = 25 °C	I _D	7	-6	A
	T _C = 70 °C		6	-5	
Pulsed Drain Current ¹		I _{DM}	20	-20	
Power Dissipation	T _C = 25 °C	P _D	2		W
	T _C = 70 °C		1.3		
Junction & Storage Temperature Range		T _j , T _{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$	48	62.5	$^\circ\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	N-Ch	30			V
		V _{GS} = 0V, I _D = -250μA	P-Ch	-30			
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	N-Ch	1	1.5	2.5	V
		V _{DS} = V _{GS} , I _D = -250μA	P-Ch	-1	-1.5	-2.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	N-Ch			±100	nA
		V _{DS} = 0V, V _{GS} = ±20V	P-Ch			±100	

Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$	N-Ch			1	μA
		$V_{DS} = -24V, V_{GS} = 0V$	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 ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	N-Ch	20			A
		$V_{DS} = -5V, V_{GS} = -10V$	P-Ch	-20			
Drain-Source Resistance ¹ On-State	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$	N-Ch		25	37	m Ω
		$V_{GS} = -4.5V, I_D = -5A$	P-Ch		44	60	
		$V_{GS} = 10V, I_D = 7A$	N-Ch		18	25	
		$V_{GS} = -10V, I_D = -6A$	P-Ch		28	35	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 7A$	N-Ch		19		S
		$V_{DS} = -5V, I_D = -5A$	P-Ch		10		

DYNAMIC

Input Capacitance	C_{iss}	N-Channel	N-Ch		790	988	pF
		P-Channel	P-Ch		970	1213	
Output Capacitance	C_{oss}	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$	N-Ch		175	245	
		P-Channel	P-Ch		370	520	
Reverse Transfer Capacitance	C_{rss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$	N-Ch		65	98	
			P-Ch		180	270	
Total Gate Charge ²	Q_g	N-Channel	N-Ch		16		nC
		$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 10V,$	P-Ch		28		
Gate-Source Charge ²	Q_{gs}	$I_D = 6A$	N-Ch		2.5		
		P-Channel	P-Ch		6		
Gate-Drain Charge ²	Q_{gd}	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -10V,$	N-Ch		2.1		
		$I_D = -5A$	P-Ch		12		
Turn-On Delay Time ²	$t_{d(on)}$	N-Channel	N-Ch		2.2	4.4	
			P-Ch		20		
Rise Time ²	t_r	$V_{DD} = 10V$	N-Ch		7.5	15	nS
		$I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 6\Omega$	P-Ch		17		
Turn-Off Delay Time ²	$t_{d(off)}$	P-Channel	N-Ch		11.8	21.3	
			P-Ch		160		
Fall Time ²	t_f	$V_{DD} = -15V$	N-Ch		3.7	7.4	
		$I_D \cong -1A, V_{GS} = -10V, R_{GEN} = 6\Omega$	P-Ch		75		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_c = 25 °C)

Continuous Current	I _S		N-Ch			1.3	A
			P-Ch			-1.3	
Pulsed Current ³	I _{SM}		N-Ch			2.6	A
			P-Ch			-2.6	
Forward Voltage ¹	V _{SD}	I _F = 1A, V _{GS} = 0V	N-Ch			1	V
		I _F = -1A, V _{GS} = 0V	P-Ch			-1	

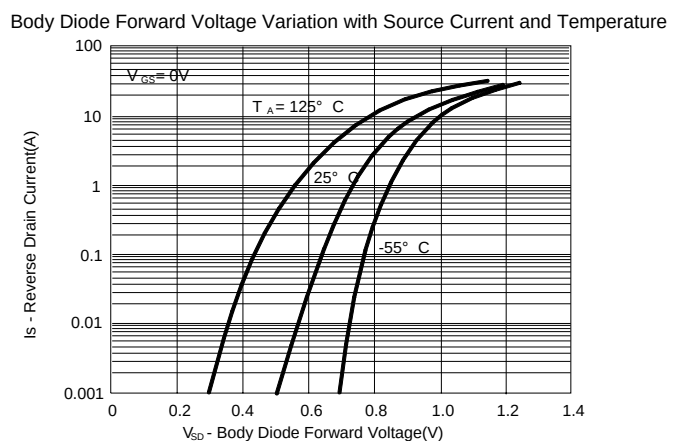
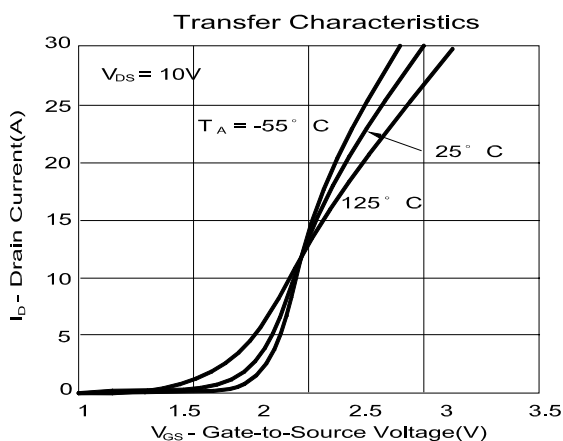
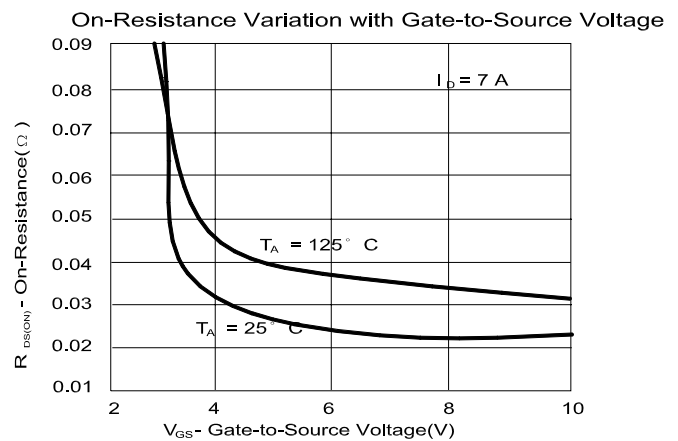
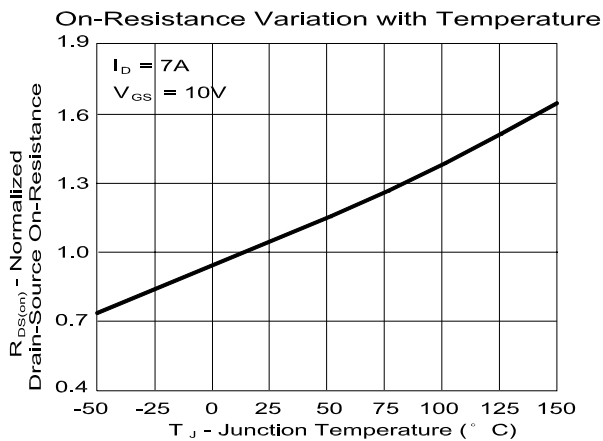
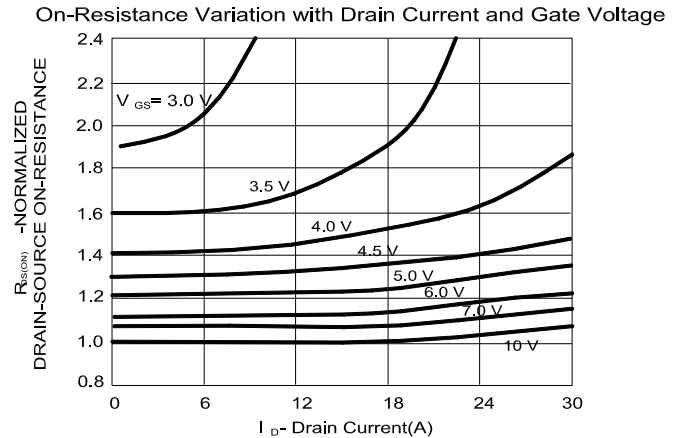
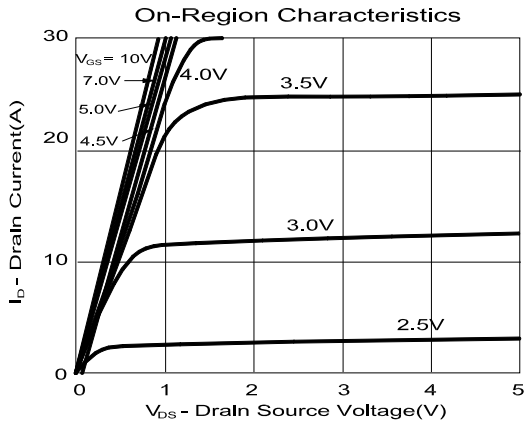
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

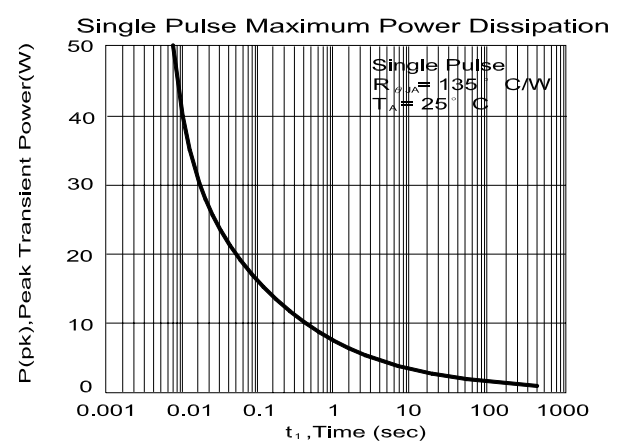
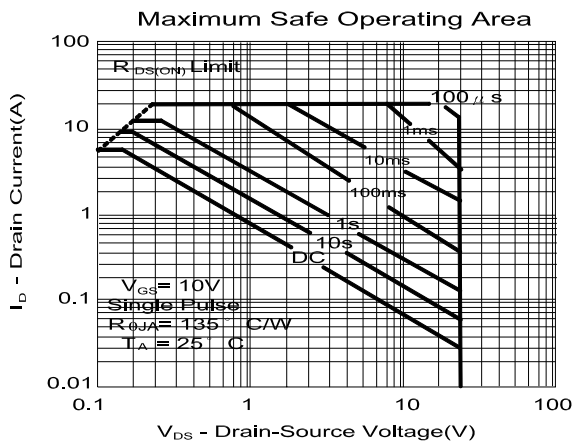
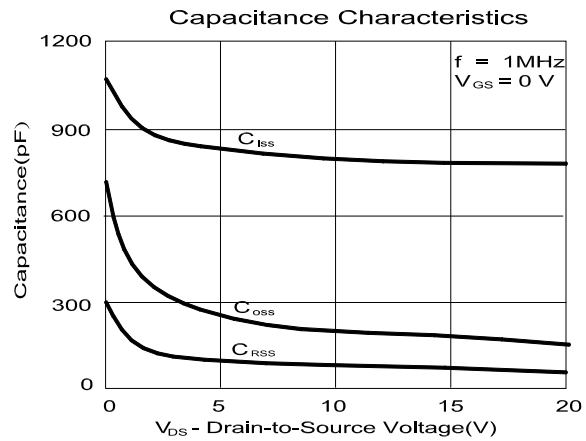
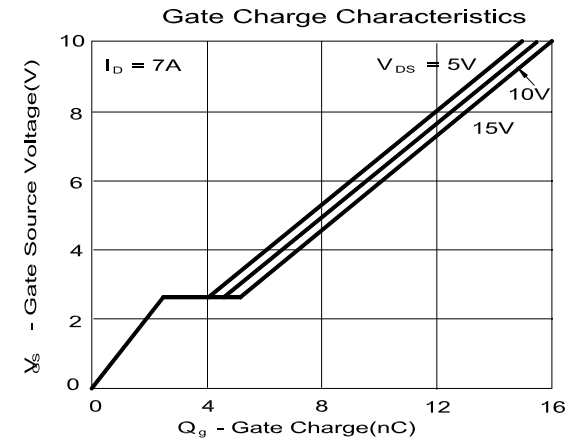
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH “P3503QVG”, DATE CODE or LOT #
Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.

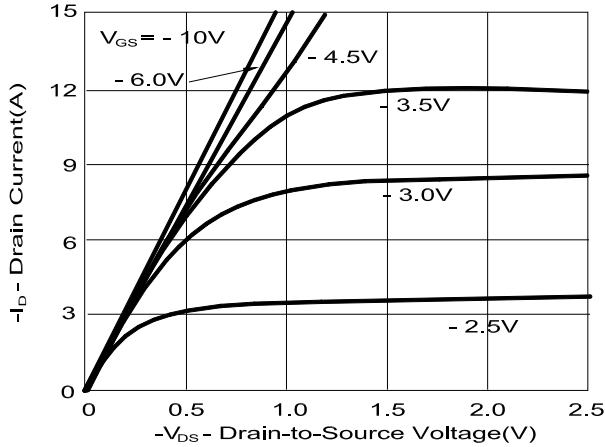
TYPICAL PERFORMANCE CHARACTERISTICS N-CHANNEL



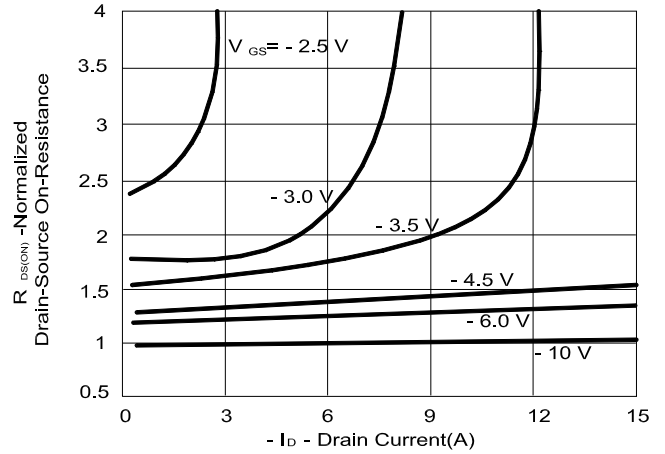


P-CHANNEL

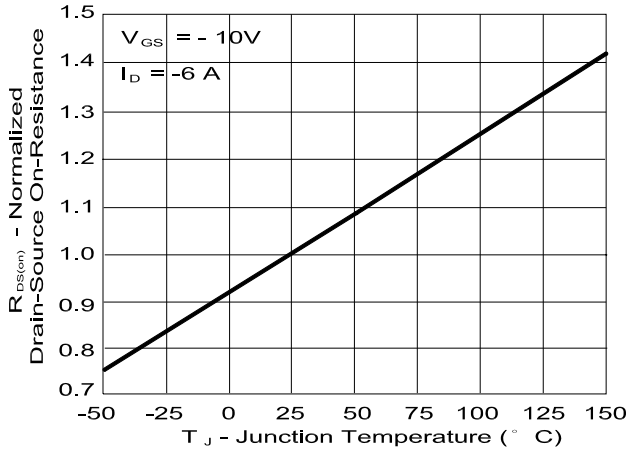
On-Region Characteristics



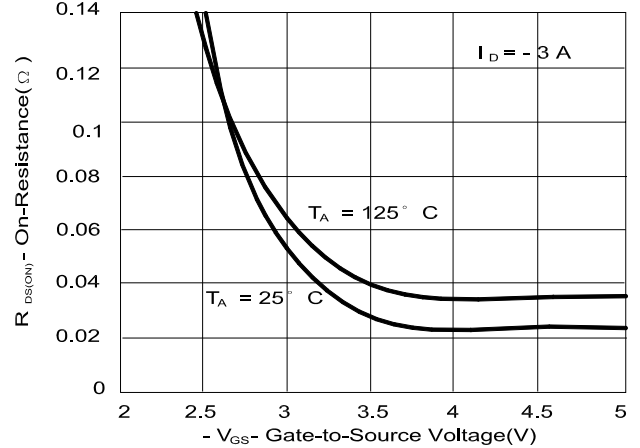
On-Resistance Variation with Drain Current and Gate Voltage



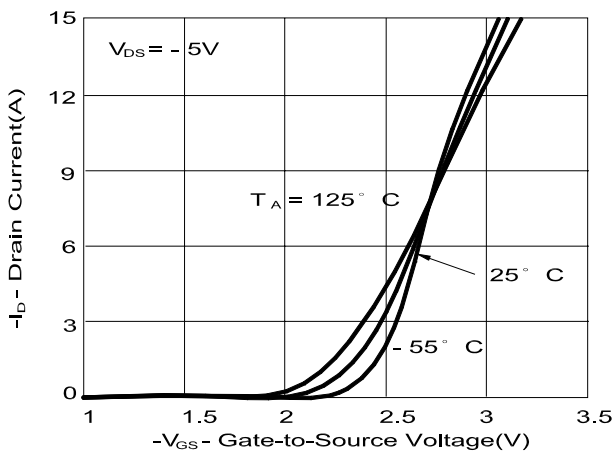
On-Resistance Variation with Temperature



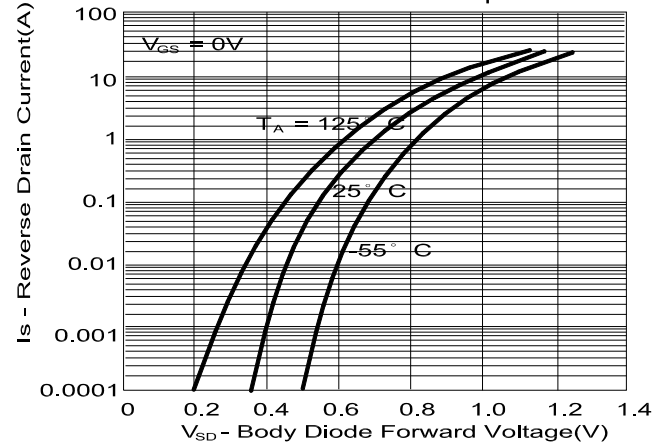
On-Resistance Variation with Gate-to-Source Voltage



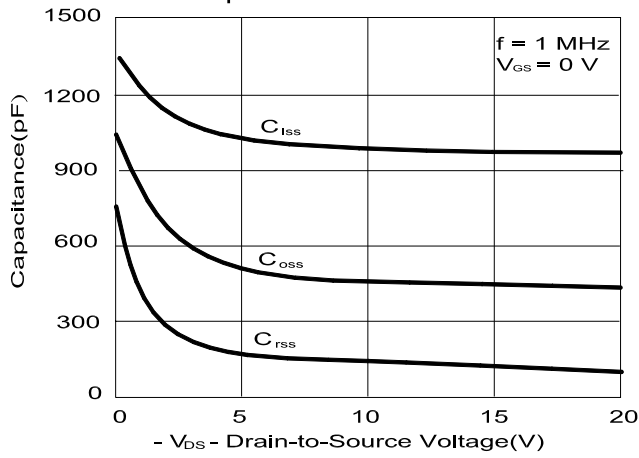
Transfer Characteristics



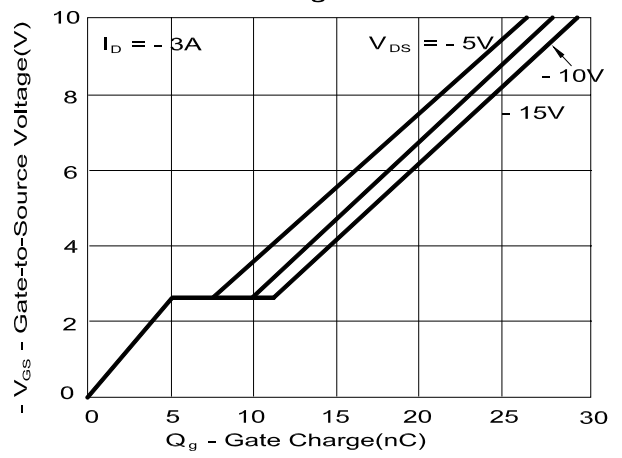
Body Diode Forward Voltage Variation with Source Current and Temperature



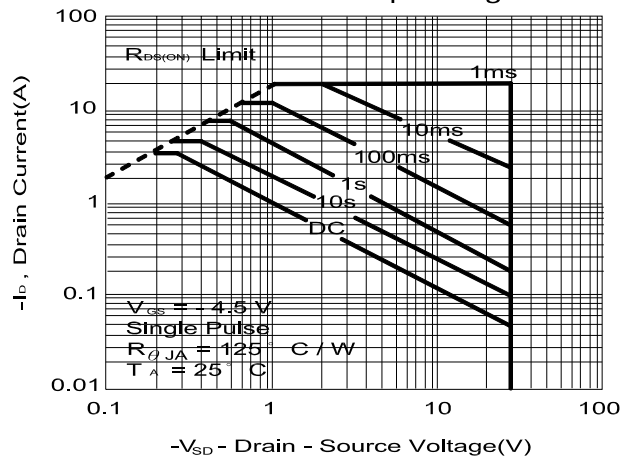
Capacitance Characteristics



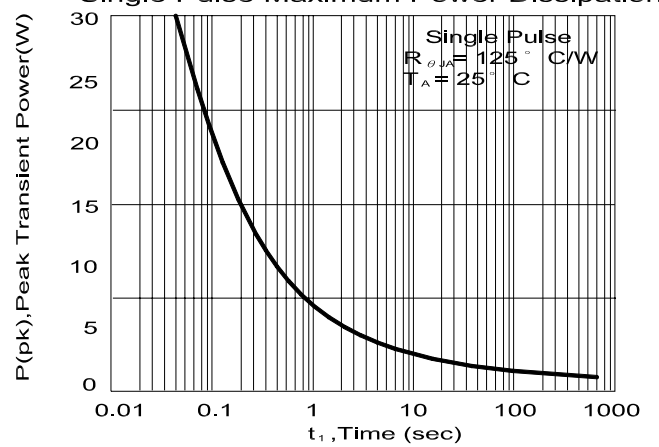
Gate Charge Characteristics



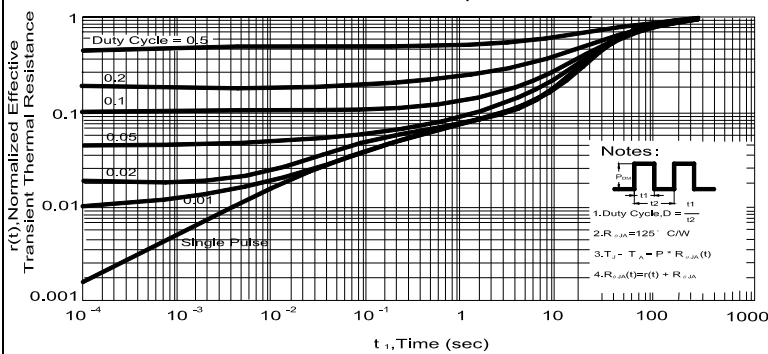
Maximum Safe Operating Area



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			

