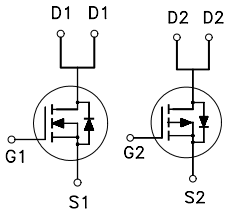
NIKO-SEM

N- & P-Channel Enhancement Mode Field Effect Transistor(Preliminary)

P4532VG
SOP-8
Lead-Free

PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
N-Channel	30	60mΩ	4A
P-Channel	-30	45mΩ	-5A





G : GATE
D : DRAIN
S : SOURCE

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °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	4	-5	A
	T_C = 70 °C		3	-4	
Pulsed Drain Current[1]		I_{DM}	12	-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	$R_{\theta JA}$		62.5	°C / W

[1]Pulse width limited by maximum junction temperature.
[2]Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS (T_C = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS		LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
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_{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 °C	N-Ch			10	
		V_{DS} = -20V, V_{GS} = 0V, T_J = 55 °C	P-Ch			-10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	N-Ch	12			A
		V_{DS} =-5V, V_{GS} = -10V	P-Ch	-20			
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 3A	N-Ch		72	95	mΩ
		V_{GS} = -4.5V, I_D = -4A	P-Ch		58	80	
		V_{GS} = 10V, I_D = 4A	N-Ch		48	60	
		V_{GS} = -10V, I_D = -5A	P-Ch		34	45	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 3A	N-Ch		19		S
		V_{DS} = -5V, I_D = -5A	P-Ch		11		

DYNAMIC							
Input Capacitance	C_{iss}	N-Channel V_{GS} = 0V, V_{DS} = 10V, f = 1MHz P-Channel V_{GS} = 0V, V_{DS} = -10V, f = 1MHz	N-Ch		790		pF
			P-Ch		690		
Output Capacitance	C_{oss}		N-Ch		175		
			P-Ch		310		
Reverse Transfer Capacitance	C_{rss}		N-Ch		65		
			P-Ch		75		
Total Gate Charge[2]	Q_g	N-Channel V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = 10V, I_D = 3A P-Channel V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = -10V, I_D = -5A	N-Ch		5		nC
			P-Ch		14		
Gate-Source Charge[2]	Q_{gs}		N-Ch		0.8		
			P-Ch		2.2		
Gate-Drain Charge[2]	Q_{gd}		N-Ch		1.0		
			P-Ch		1.9		

Turn-On Delay Time[2]	$t_{d(on)}$	N-Channel V_{DD} = 10V $I_D \cong$ 1A, V_{GS} = 10V, R_{GEN} = 6Ω	N-Ch P-Ch		7 6.7	11 13.4	nS
Rise Time[2]	t_r		N-Ch P-Ch		12 9.7	18 19.4	
Turn-Off Delay Time[2]	$t_{d(off)}$	P-Channel V_{DD} = -10V $I_D \cong$ -1A, V_{GS} = -10V, R_{GEN} = 6Ω	N-Ch P-Ch		12 19.8	18 35.6	
Fall Time[2]	t_f		N-Ch P-Ch		7 12.3	11 22.2	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)							
Continuous Current	I_S		N-Ch P-Ch			1.2 -1.3	A
Pulsed Current[3]	I_{SM}		N-Ch P-Ch			2.6 -2.6	
Forward Voltage[1]	V_{SD}	I_F = 1A, V_{GS} = 0V I_F = -1A, V_{GS} = 0V	N-Ch P-Ch			1 -1	V

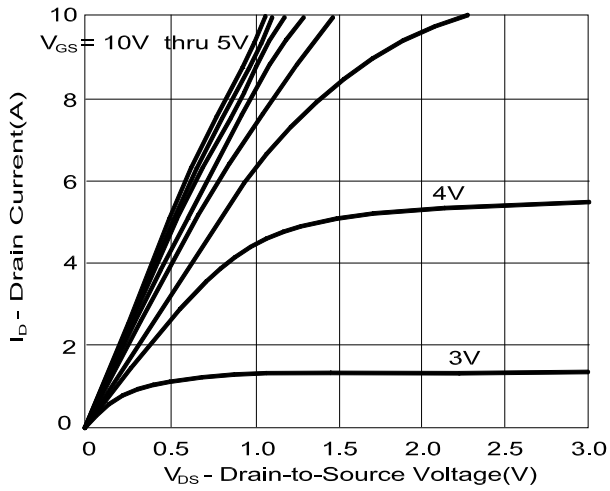
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.
[3]Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH "P4532VG", DATE CODE or LOT #

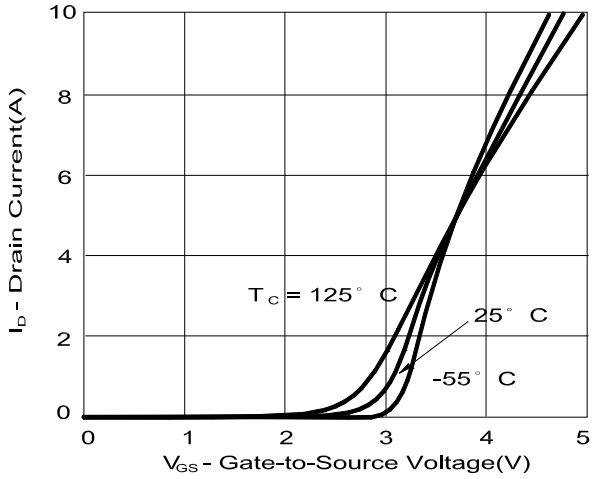
Orders for parts with Lead-Free plating can be placed using the PXXXXXG parts name.

N-CHANNEL

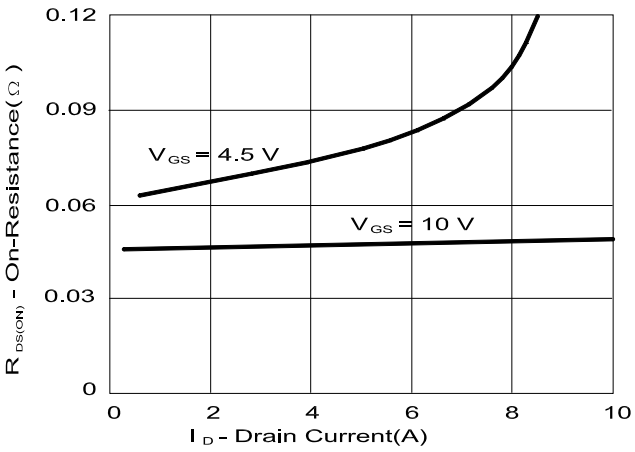
Output Characteristics



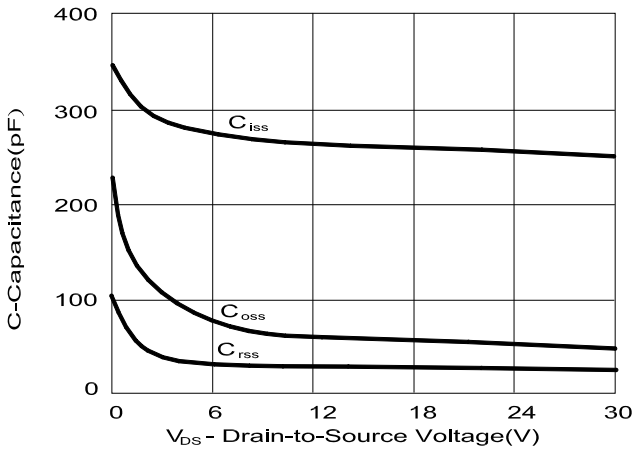
Transfer Characteristics



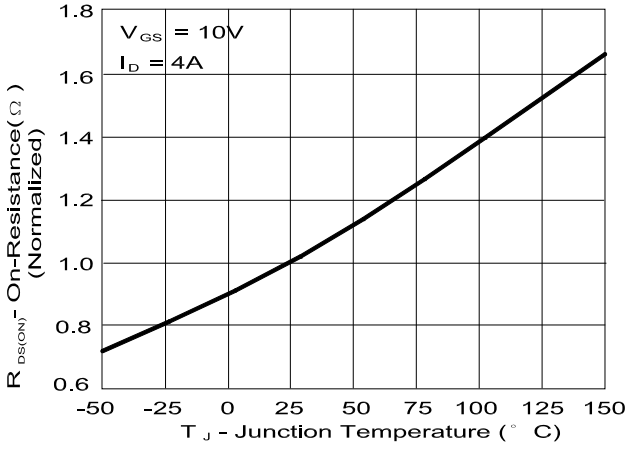
On-Resistance vs. Drain Current



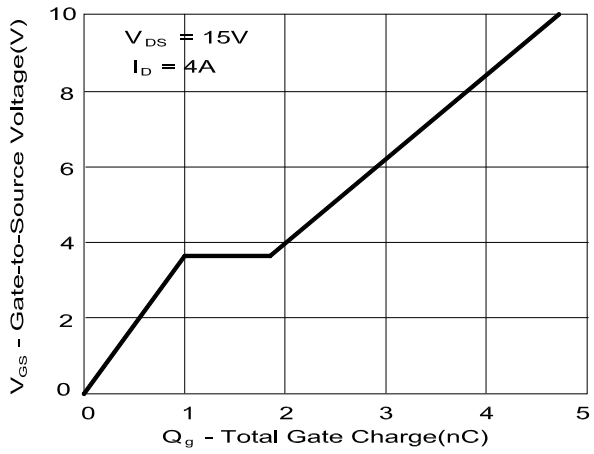
Capacitance



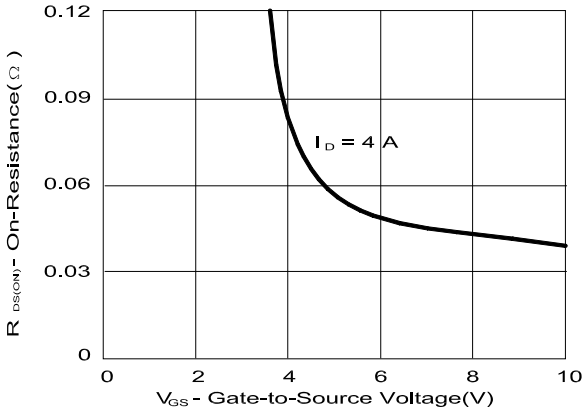
On-Resistance vs.Junction Temperature



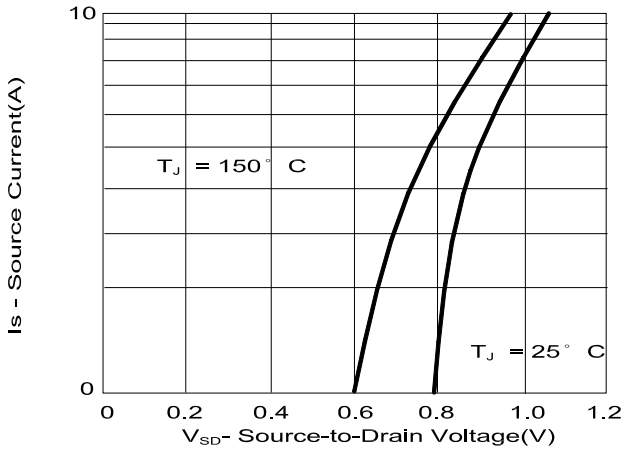
Gate Charge



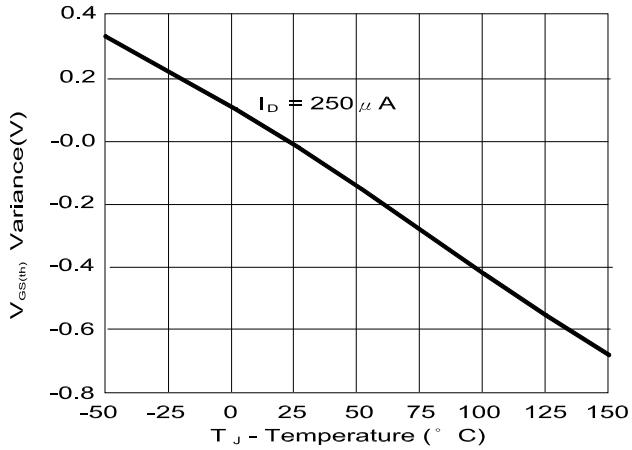
On-Resistance vs. Gate-to-Source Voltage



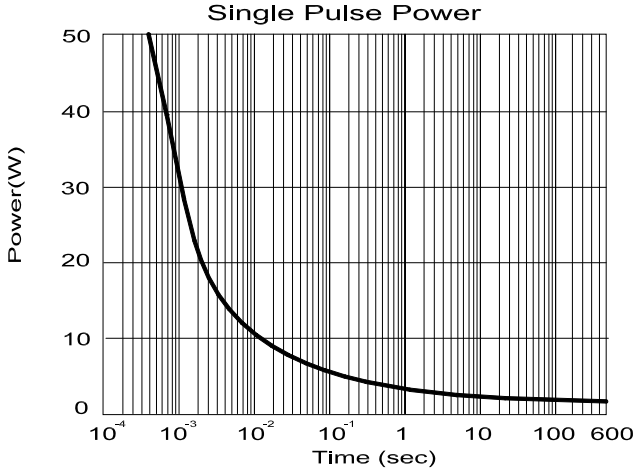
Source-Drain Diode Forward Voltage



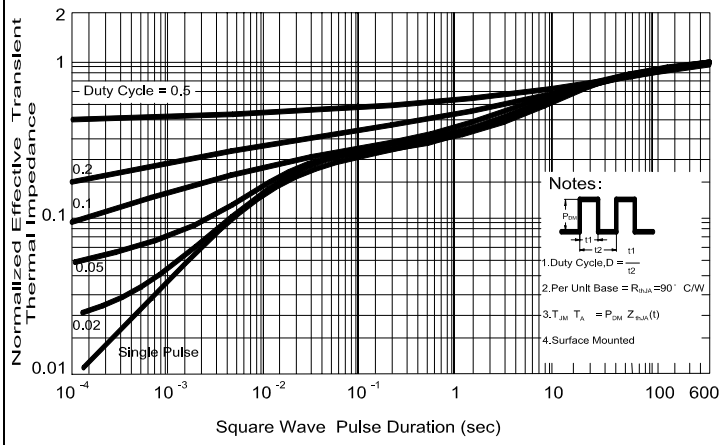
Threshold Voltage



Single Pulse Power

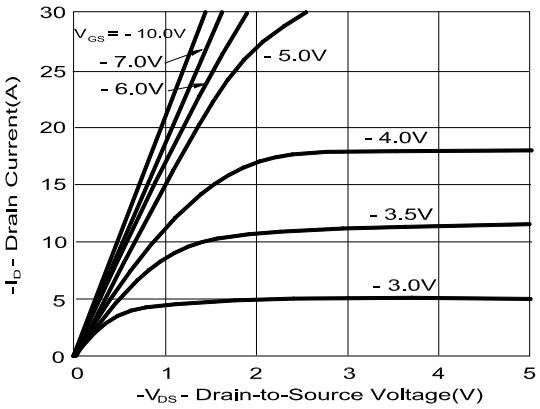


Normalized Thermal Transient Impedance,Junction-to-Ambient

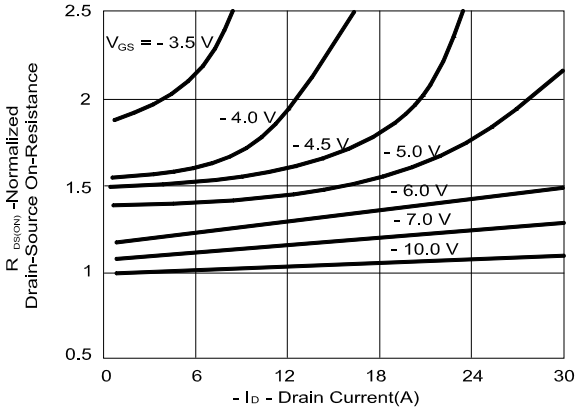


P-CHANNEL

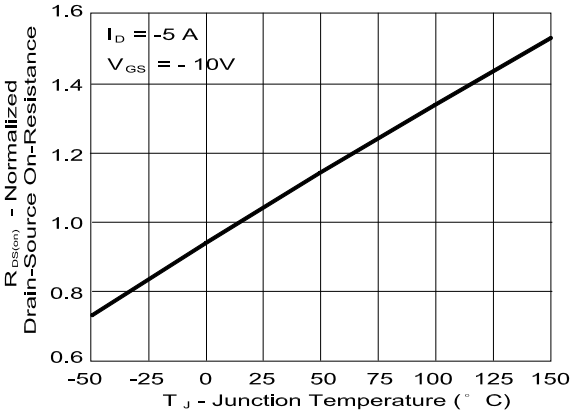
On-Region Characteristics



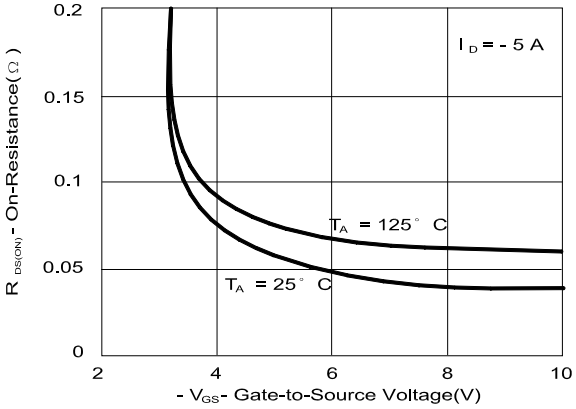
On-Resistance Variation with Drain Current and Gate Voltage



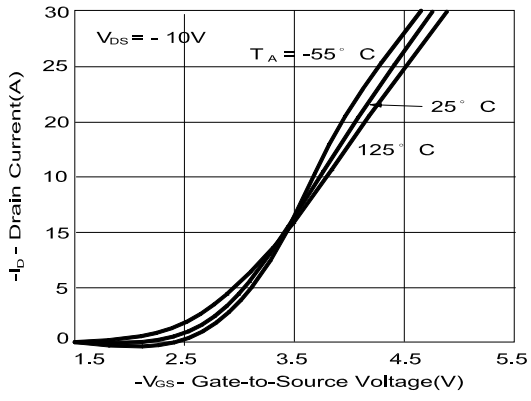
On-Resistance Variation with Temperature



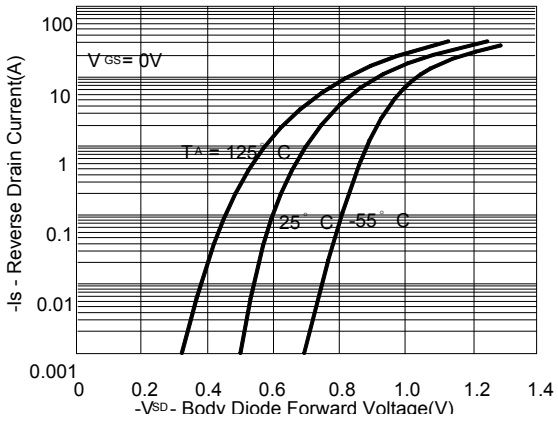
On-Resistance Variation with Gate-to-Source Voltage



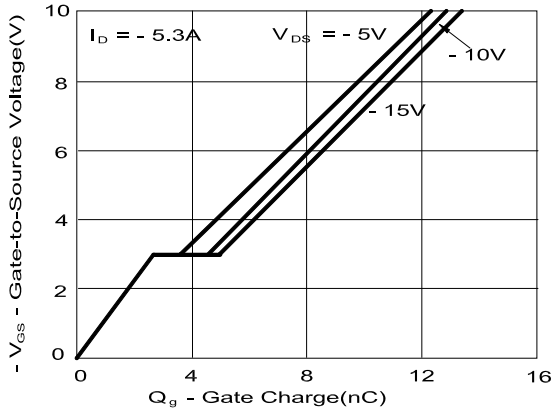
Transfer Characteristics



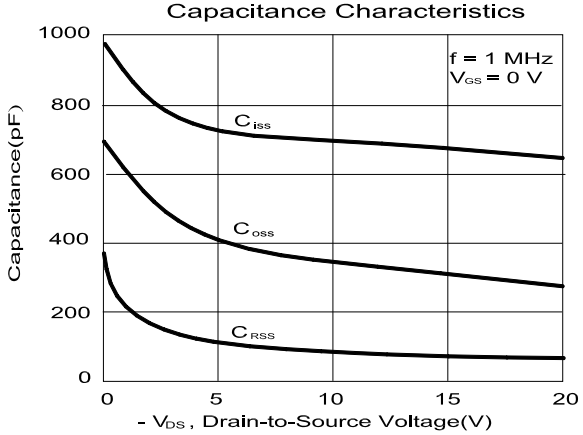
Body Diode Forward Voltage Variation with Source Current and Temperature



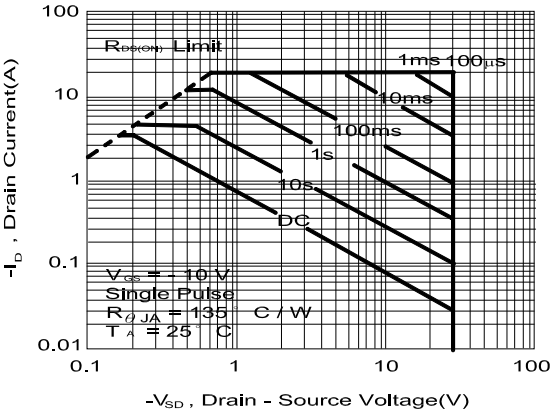
Gate Charge Characteristics



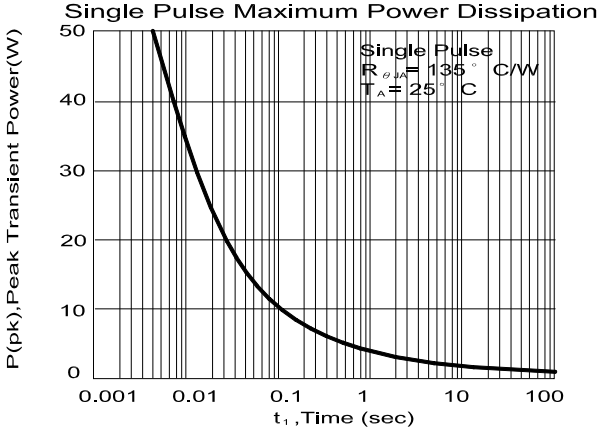
Capacitance Characteristics



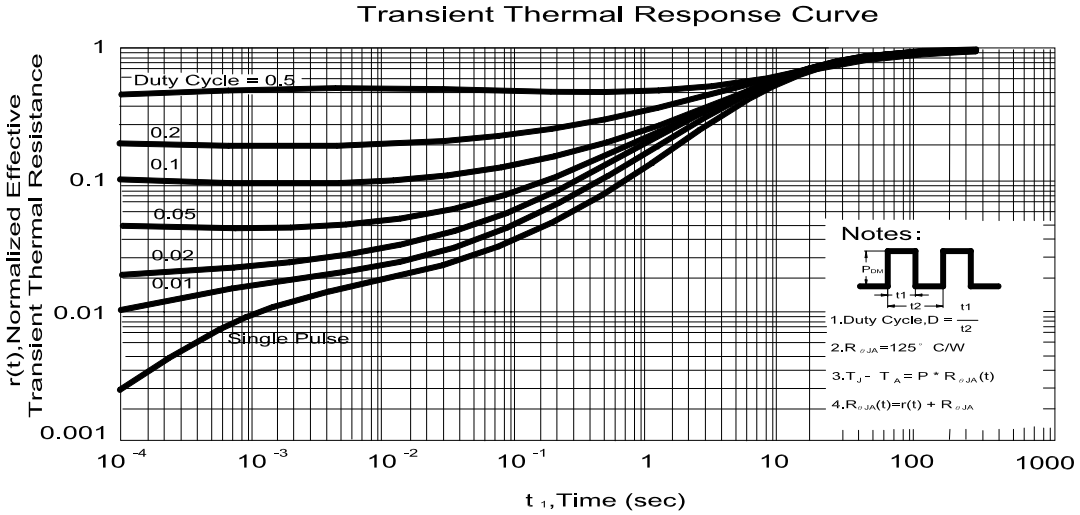
Maximum Safe Operating Area



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			

