PE601CA

N&P-Channel Enhancement Mode MOSFET

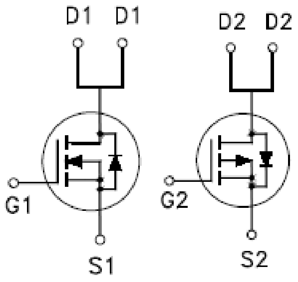
PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D	Channel
30V	22mΩ @V_{GS} = 10V	20A	N
-30V	28mΩ @V_{GS} = -10V	-19A	P

PDFN 3X3P

100% UIS Tested

100% Rg Tested



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	CH.	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	N	30	V
			P	-30	
Gate-Source Voltage		V_{GS}	N	±20	V
			P	±20	
Continuous Drain Current[4]	T_C = 25 °C	I_D	N	20	A
			P	-19	
	T_C = 100 °C		N	13	
			P	-12	
	T_A = 25 °C		N	8.1	
			P	-7.4	
	T_A= 70 °C		N	6.5	
			P	-5.9	
Pulsed Drain Current[1]		I_{DM}	N	40	
			P	-35	
Avalanche Current		I_{AS}	N	11.9	
			P	-19.3	
Avalanche Energy	L =0.1mH	E_{AS}	N	7.1	mJ
			P	18.7	
Power Dissipation	T_C = 25 °C	P_D	N	17	W
			P	18	
	T_C = 100 °C		N	7.1	
			P	7.3	

Power Dissipation[3]	T_A = 25 °C	P_D	N	2.7	W
			P	2.7	
	T_A = 70 °C		N	1.7	
			P	1.7	
Junction & Storage Temperature Range		T_J, T_{stg}		-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	CH.	TYPICA	MAXIMUM	UNITS
Junction-to-Ambient[2]	t≦10s	$R_{\theta JA}$	N		45	°C / W
			P		45	
Junction-to-Ambient[2]	Steady-State		N		71	
			P		69	
Junction-to-Case	Steady-State	$R_{\theta JC}$	N		7	
			P		6.8	

[1] Pulse width limited by maximum junction temperature.

[2] The value of $R_{\theta JA}$ is measured with the device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

[3] The Power dissipation is based on $R_{\theta JA}$ t ≦10s value.

[4] Package limitation current is N-Ch=8.3A, P-Ch=-6.9A.

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

PARAMETER	SYMBOL	TEST CONDITIONS	CH.	LIMITS			UNITS
				MIN	TYP	MAX	
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	N	30			V
		V_{GS} = 0V, I_D = -250μA	P	-30			
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	N	1	1.6	2.5	
		V_{DS} = V_{GS}, I_D = -250μA	P	-1	-1.5	-2.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	N			±100	nA
		V_{DS} = 0V, V_{GS} = ±20V	P			±100	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V	N			1	μA
		V_{DS} = -24V, V_{GS} = 0V	P			-1	
		V_{DS} = 20V, V_{GS} = 0V, T_J = 55 °C	N			10	
		V_{DS} = -20V, V_{GS} = 0V, T_J = 55 °C	P			-10	

PE601CA

N&P-Channel Enhancement Mode MOSFET

Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 6A	N		17.1	32	mΩ
		V_{GS} = -4.5V, I_D = -5A	P		28.2	45	
		V_{GS} = 10V, I_D = 7A	N		12.6	22	
		V_{GS} = -10V , I_D = -6A	P		20.2	28	
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 7A	N		40		S
		V_{DS} = -10V, I_D = -6A	P		17.5		
DYNAMIC							
Input Capacitance	C_{iss}	N-Channel V_{GS} = 0V, V_{DS} = 15V, f = 1MHz P-Channel V_{GS} = 0V, V_{DS} = -15V, f = 1MHz	N		344		pF
			P		904		
Output Capacitance	C_{oss}		N		72		
			P		143		
Reverse Transfer Capacitance	C_{rss}		N		50		
			P		123		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz	N		2.8		Ω
			P		11.3		
Total Gate Charge[2]	Q_g	N-Channel V_{DS} = 15V , I_D = 10A I_D = 7A P-Channel V_{DS} = -15V , V_{GS} = -10V, I_D = -6A	N		7.8		nC
			P		21		
Gate-Source Charge[2]	Q_{gs}		N		1		
			P		2		
Gate-Drain Charge[2]	Q_{gd}		N		2		
			P		6.1		
Turn-On Delay Time[2]	$t_{d(on)}$	N-Channel V_{DS}= 15V, I_D ≅ 7A, V_{GS} = 10V, R_{GEN}= 6Ω P-Channel V_{DS} = -15V, ID ≅ -6A, VGS = -10V, R_{GEN} = 6Ω	N		15		nS
			P		15		
Rise Time[2]	t_r		N		30		
			P		30		
Turn-Off Delay Time[2]	$t_{d(off)}$		N		20		
			P		50		
Fall Time[2]	t_f		N		13		
			P		41		

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

Continuous Current[3]	I_S		N			15	A
			P			-18	
Forward Voltage[1]	V_{SD}	$I_F = 7A, V_{GS} = 0V$	N			1.1	V
		$I_F = -6A, V_{GS} = 0V$	P			-1	
Reverse Recovery Time	t_{rr}	$I_F = 7A, dI_F/dt = 100A / \mu s$ $I_F = -6A, dI_F/dt = 100A / \mu S$	N		8.6		nS
			P		12.2		
Reverse Recovery Charge	Q_{rr}		N		2.1		nC
			P		3.7		

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

[2] Independent of operating temperature.

[3] Package limitation current is N-Ch=8.3A, P-Ch=-6.9A.

PE601CA

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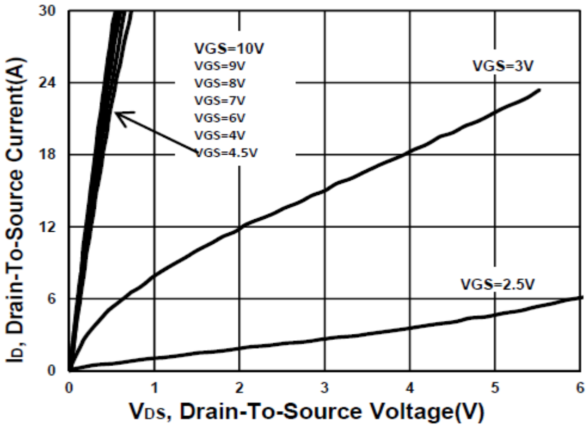
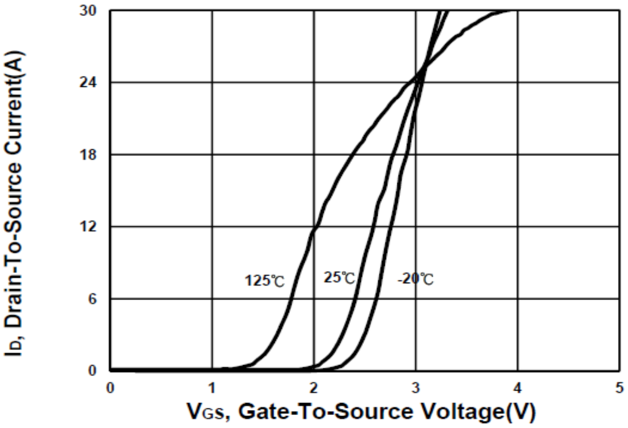
N-CHANNEL

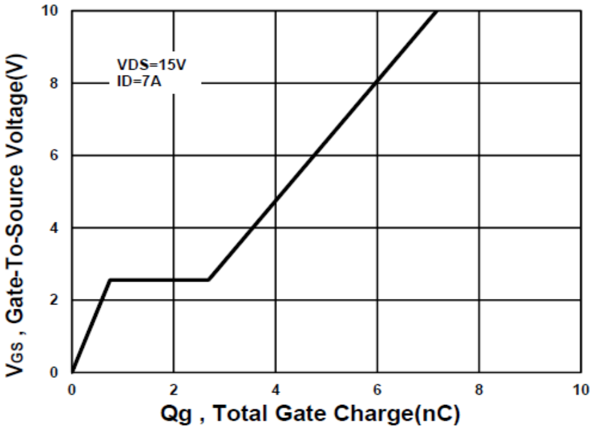
Output Characteristics



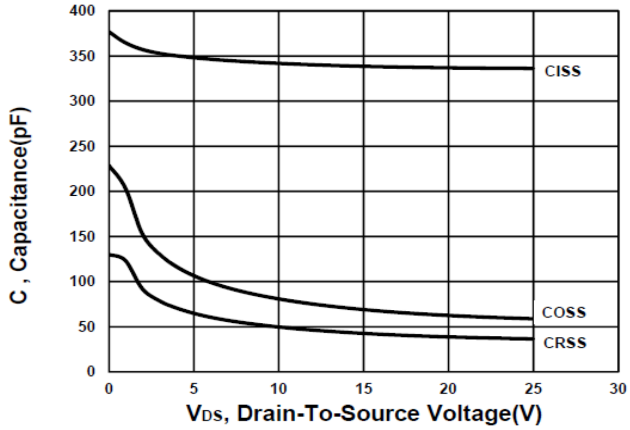
Transfer Characteristics



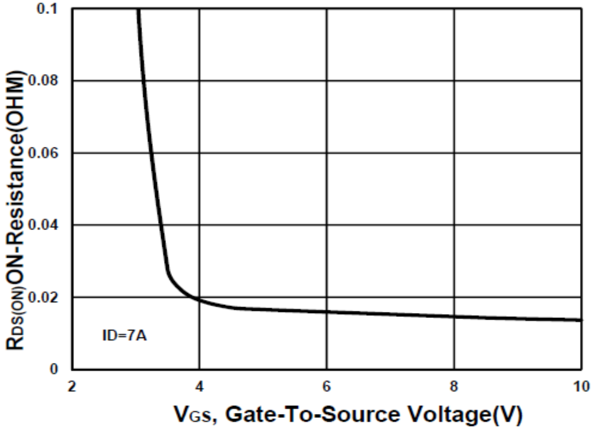
Gate charge Characteristics



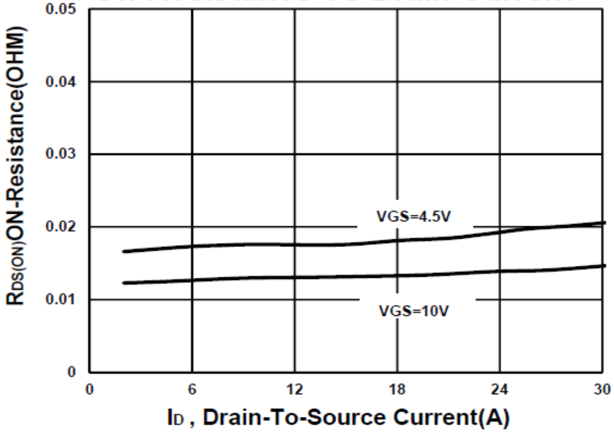
Capacitance Characteristic



On-Resistance VS Gate-To-Source



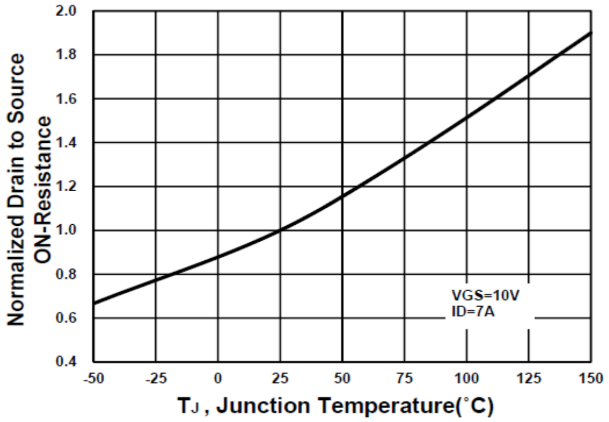
On-Resistance VS Drain Current



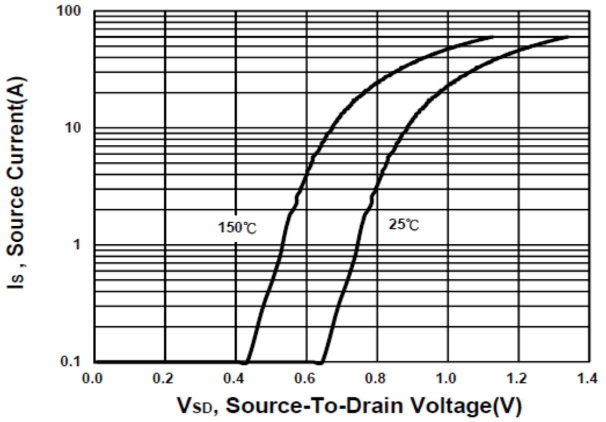
PE601CA

N&P-Channel Enhancement Mode MOSFET

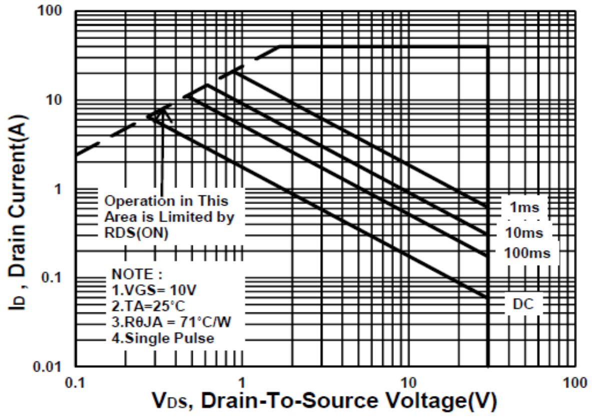
On-Resistance VS Temperature



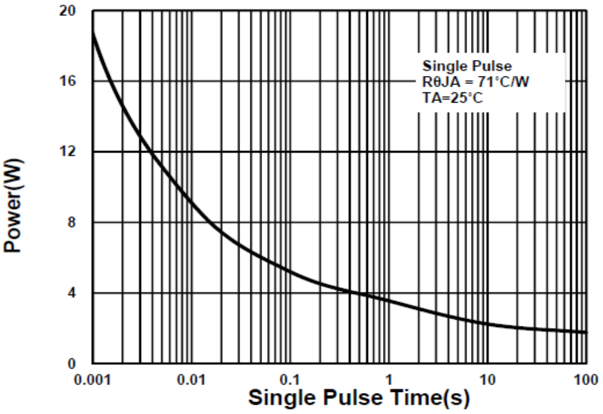
Source-Drain Diode Forward Voltage



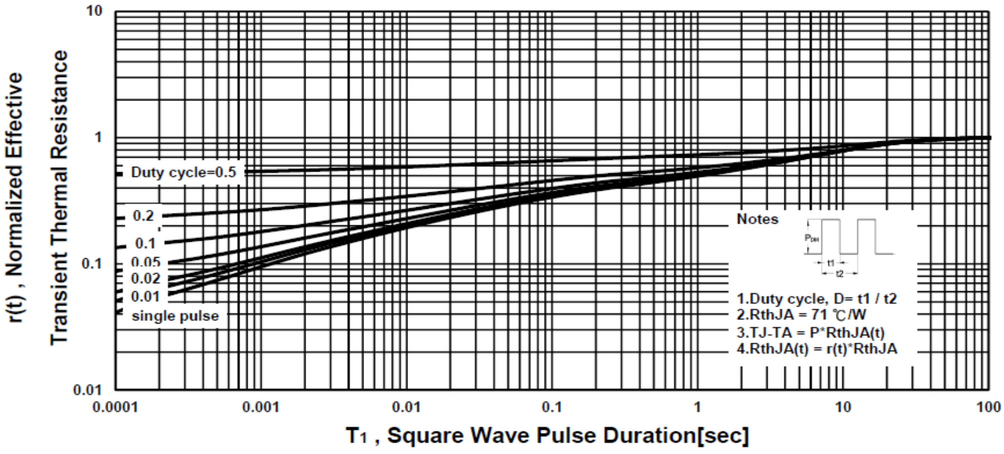
Safe Operating Area



Single Pulse Maximum Power Dissipation

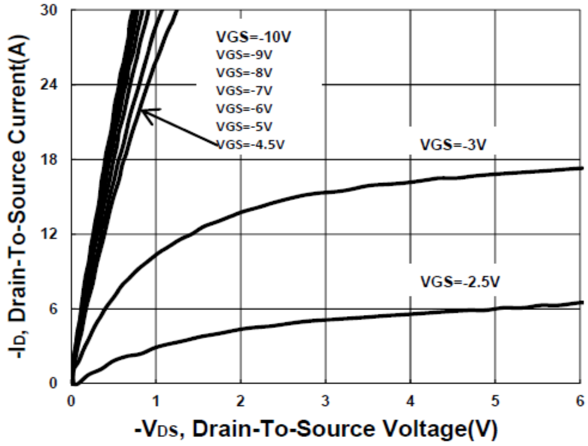


Transient Thermal Response Curve

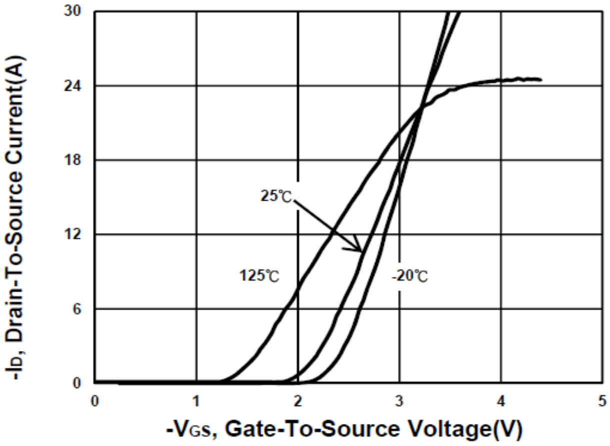


P-CHANNEL

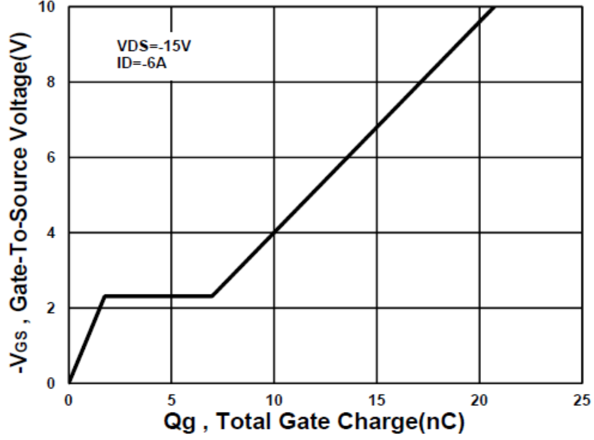
Output Characteristics



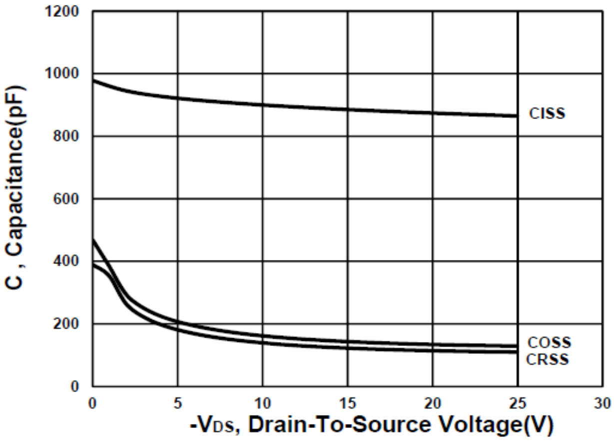
Transfer Characteristics



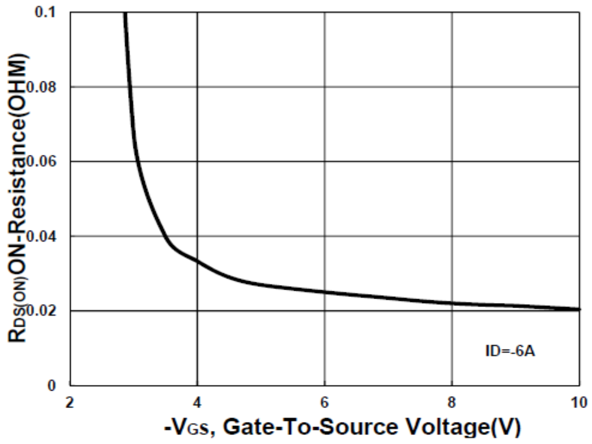
Gate charge Characteristics



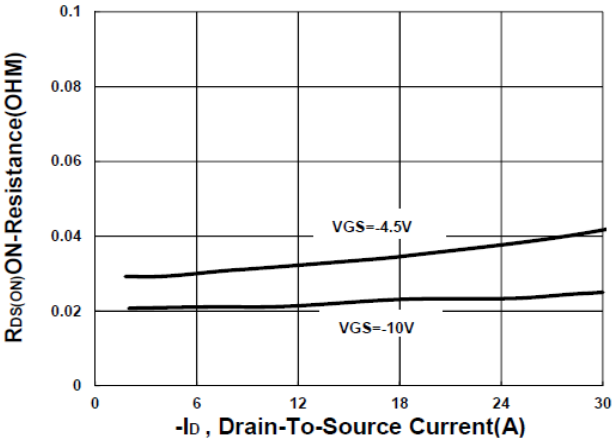
Capacitance Characteristic



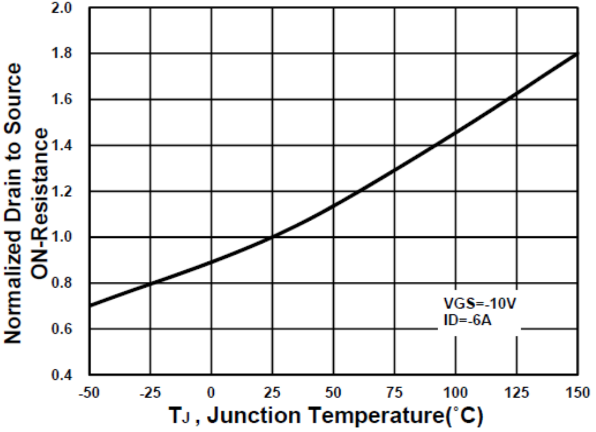
On-Resistance VS Gate-To-Source



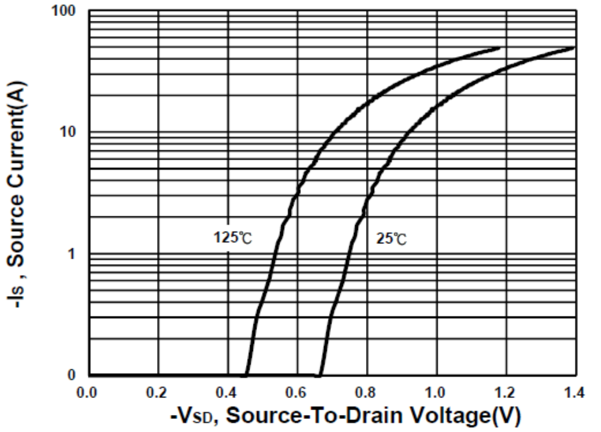
On-Resistance VS Drain Current



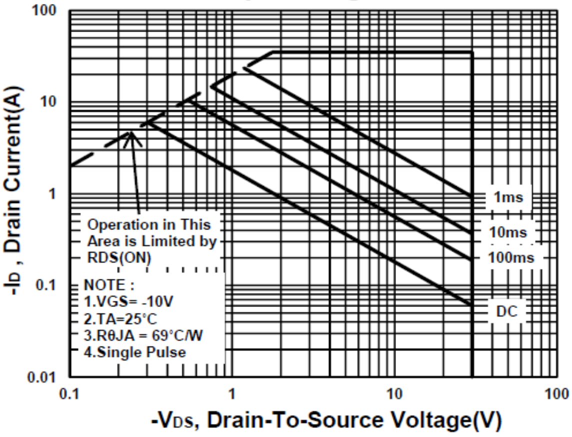
On-Resistance VS Temperature



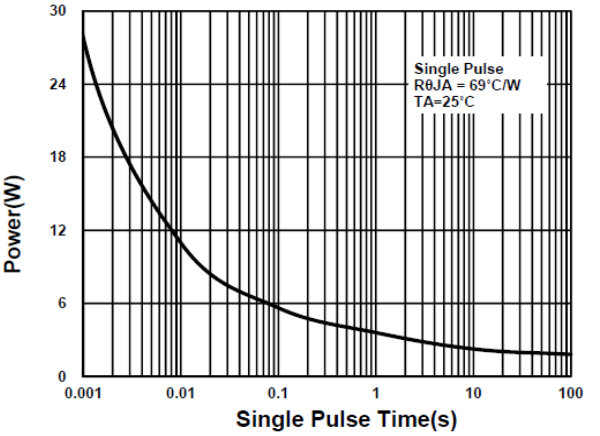
Source-Drain Diode Forward Voltage



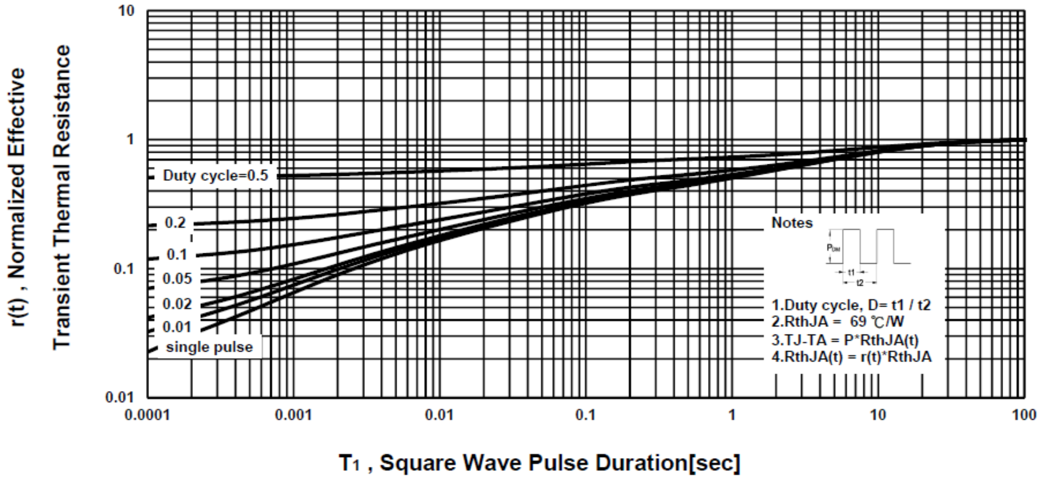
Safe Operating Area



Single Pulse Maximum Power Dissipation



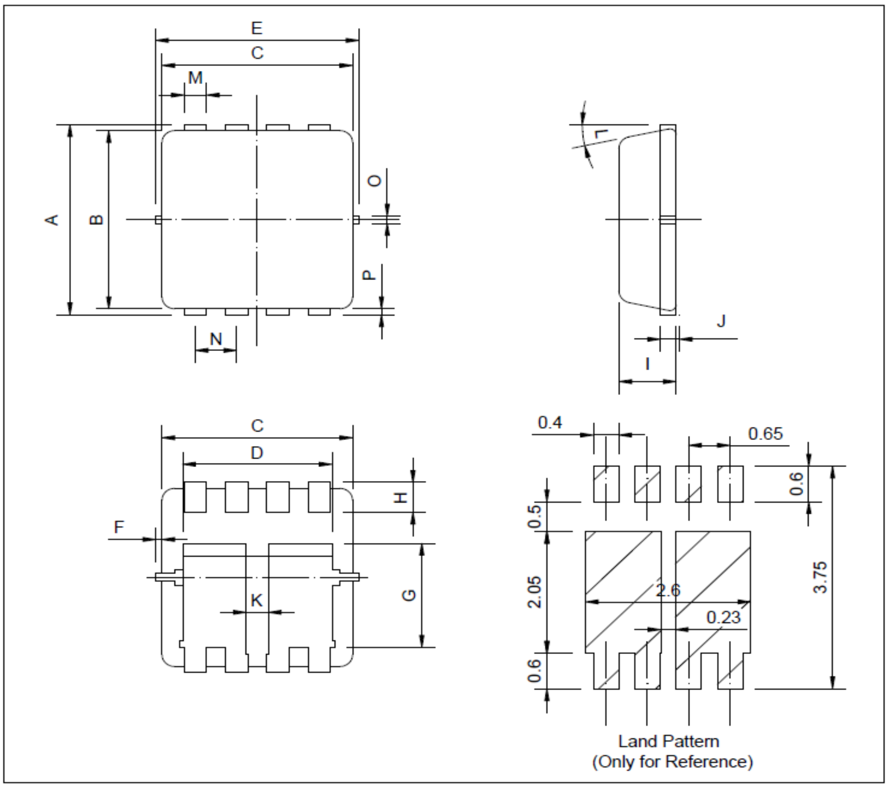
Transient Thermal Response Curve



Package Dimension

PDFN 3x3P(Dual) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	3.2	3.3	3.4	I	0.7	0.75	0.8
B	2.95	3.05	3.15	J	0.1	0.15	0.25
C	2.95	3.05	3.15	K	0.35		
D		2.29		L	0°	10°	12°
E	3.2	3.3	3.4	M	0.27	0.32	0.37
F		0.13		N		0.65	
G	1.7	1.83	1.96	O		0.2	
H	0.3	0.4	0.5	P	0.06	0.13	0.2



PE601CA

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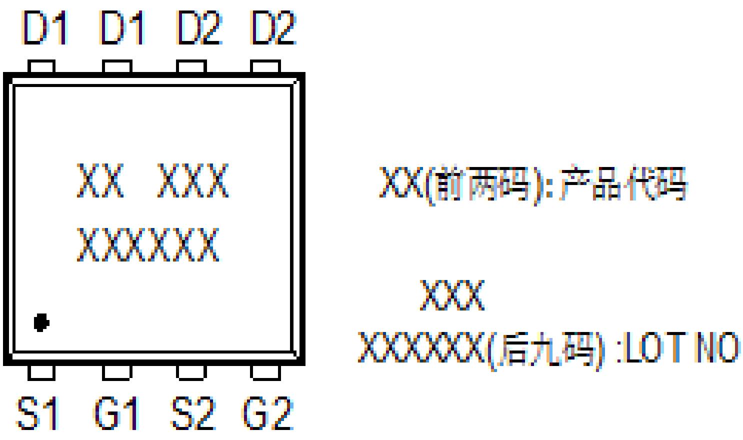
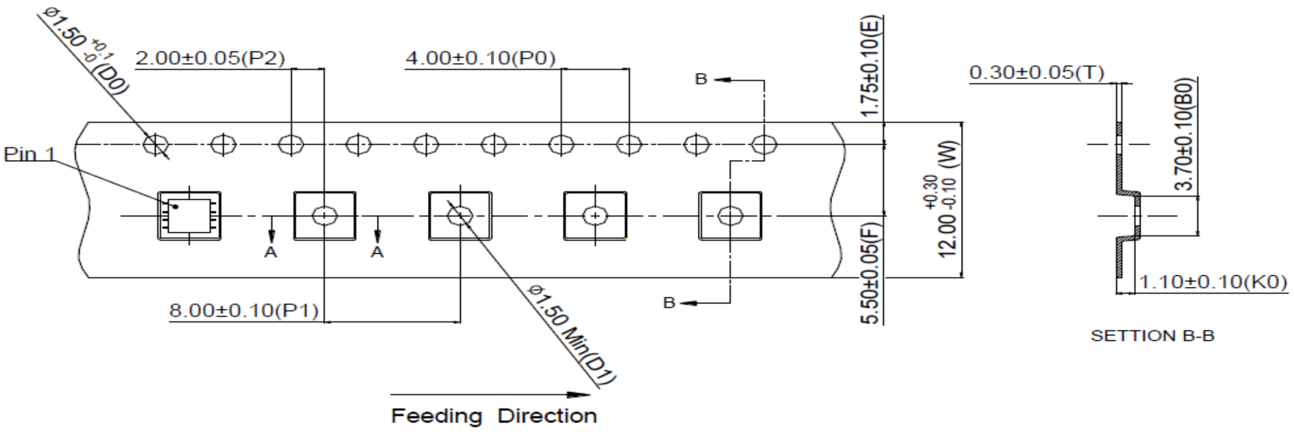
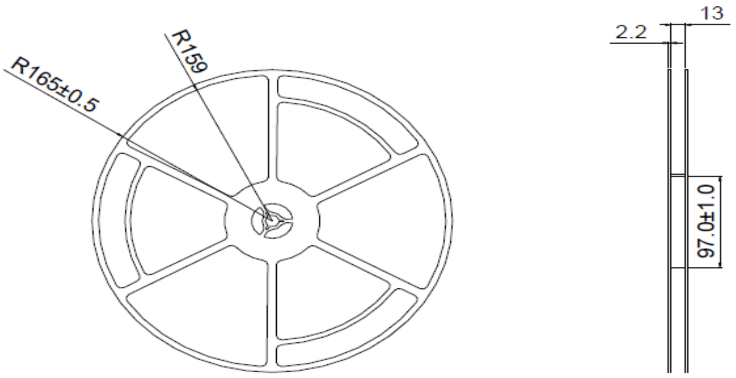
A. Marking Information(此产品代码为：K9）



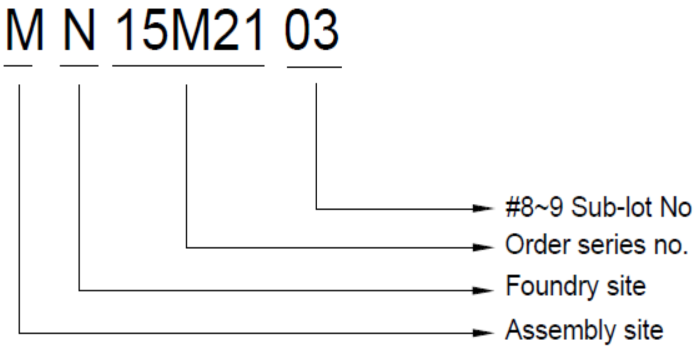
B. Tape&Reel Information:5000pcs/Reel



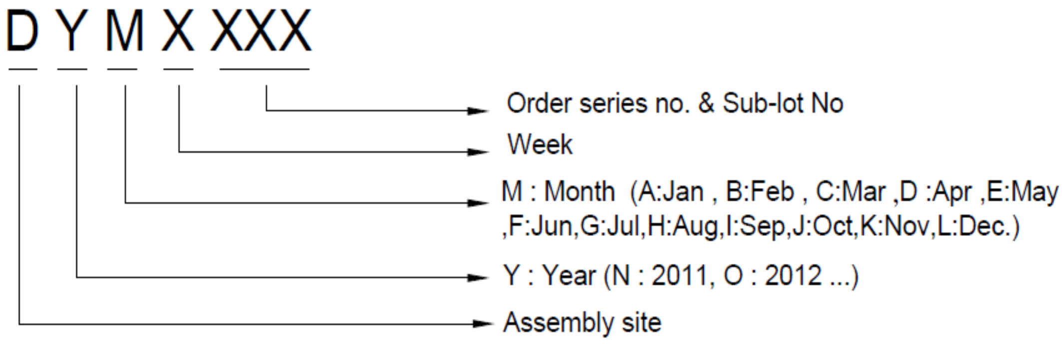


C. Lot.No. & Date Code rule

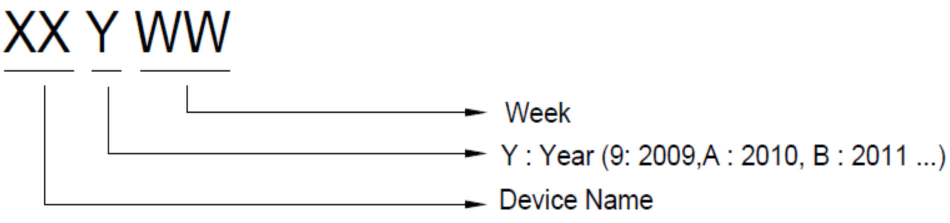
1.LOT.NO.



2.Date Code



3.Date Code (for Small package)



D.Label rule

标签内容(Label content)

1	Label Size	30 * 90 mm
2	Font style	Times New Roman or Arial （或可区分英文”O”和数字”0”，”G和”Q”的字型即可）
3	Great Power	Height: 4 mm
4	Package	Height: 2 mm
5	Date	Height: 2 mm Shipping date: YYYY/MM/DD, ex. 2008/09/12
6	Device	Height: 3 mm (Max: 16 Digit)
7	Lot	Height: 3 mm (Max: 9 Digit) Sub lot
8	D/C	Height: 3 mm (Max: 7 Digit)
9	QTY	Height: 3 mm (Max: 6 Digit) Thousand mark is no needed
10	Pb Free label	Pb Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
11	Halogen Free label	G Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
12	Scan info	Device / Lot / D/C / QTY , Insert “ / “ between every parts. for example: P3055LDG/G12345601/GGG2301/2000 DPI (Dots per inch): Over 300 dpi Code : Code 128 Height: 6 mm at least