UNIKC Semiconductor

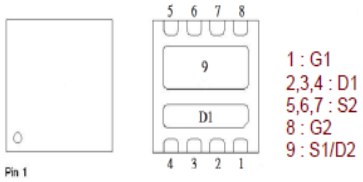
RoHS Compliant

PE618DT

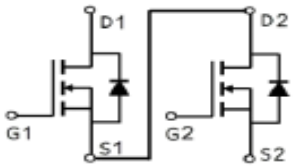
Dual N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
Q2	30V	7mΩ @V_{GS} = 10V	39A
Q1	30V	16mΩ @V_{GS} = 10V	23A



PDFN 3X3S



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

PARAMETERS/TEST CONDITIONS		SYMBOL	Q2	Q1	UNITS
Drain-Source Voltage		V_{DS}	30	30	V
Gate-Source Voltage		V_{GS}	±20	±20	
Continuous Drain Current[3]	T_C = 25 °C	I_D	39	23	A
	T_C = 100 °C		25	14	
Pulsed Drain Current[1]		I_{DM}	50	32	
Continuous Drain Current	T_A = 25 °C	I_D	12	7.3	
	T_A = 70 °C		10	5.8	
Avalanche Current		I_{AS}	23	12	
Avalanche Energy	L = 0.1mH	E_{AS}	26	7	mJ
Power Dissipation	T_C = 25 °C	P_D	20	16	W
	T_C = 100 °C		8.3	6	
Power Dissipation	T_A = 25 °C	P_D	2.2	1.6	
	T_A = 70 °C		1..4	1	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL		TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient[2]	$R_{\theta JA}$	Q2		56	°C / W
	$R_{\theta JA}$	Q1		77	
Junction-to-case	$R_{\theta JC}$	Q2		6	
	$R_{\theta JC}$	Q1		7.5	

[1]Pulse width limited by maximum junction temperature $T_{J(MAX)}$=150°C.

[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. The value in any given application depends on the user's specific board design.

[3]Package limitation current is Q2=19A , Q1=11A.

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

PARAMETER	SYMBOL	TEST CONDITIONS		LIMITS MIN	LIMITS TYP	LIMITS MAX	UNITS
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	Q2	30			V
			Q1	30			
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	Q2	1.3	1.75	2.3	
			Q1	1.3	1.75	2.3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	Q2			±100	nA
			Q1			±100	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V	Q2			1	μA
			Q1			1	
		V_{DS} = 20V, V_{GS} = 0V ,T_J = 55 °C	Q2			10	
			Q1			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 10A	Q2		7	9.5	mΩ
		V_{GS} = 4.5V, I_D = 6A	Q1		19.4	24	
		V_{GS} = 10V, I_D = 12A	Q2		5.4	7	
		V_{GS} = 10V, I_D = 7A	Q1		13	16	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 12A	Q2		55		S
		V_{DS} = 5V, I_D = 7A	Q1		34		
DYNAMIC							
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz	Q2		941		pF
			Q1		331		
Output Capacitance	C_{oss}		Q2		172		
			Q1		71		
Reverse Transfer Capacitance	C_{rss}		Q2		118		
			Q1		48		
Total Gate Charge[2]	Q_g	V_{GS} = 10V	Q2		21		nC
			Q1		8		
		V_{GS} = 4.5V	Q2		14		
		Q2 V_{DS} = 15V , V_{GS} = 10V, I_D = 12A	Q1		4.4		
Gate-Source Charge[2]	Q_{gs}	Q1 V_{DS} = 15V , V_{GS} = 10V, I_D = 7A	Q2		2		
			Q1		1.2		
Gate-Drain Charge[2]	Q_{gd}		Q2		7		
			Q1		2.3		

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Turn-On Delay Time[2]	$t_{d(on)}$	Q2 V_{DS} = 15V , $I_D \cong$12A, V_{GS} = 10V, R_{GEN} =6Ω Q1 V_{DS} = 15V , $I_D \cong$7A, V_{GS} = 10V, R_{GEN} =6Ω	Q2		28		nS
			Q1		17		
Rise Time[2]	t_r		Q2		23.8		
			Q1		17		
Turn-Off Delay Time[2]	$t_{d(off)}$		Q2		51		
			Q1		37		
Fall Time[2]	t_f		Q2		25		
			Q1		18		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)							
Continuous Current[3]	I_S		Q2			16	A
			Q1			11.4	
Forward Voltage[1]	V_{SD}	I_F = 12A, V_{GS} = 0V	Q2			1.2	V
		I_F = 7A, V_{GS} = 0V	Q1			1.4	
Reverse Recovery Time	t_{rr}	Q2 I_F = 12A, dI_F/dt = 100A /μS Q1 I_F = 7A, dI_F/dt = 100A /μS	Q2		16		nS
			Q1		8.8		
Reverse Recovery Charge	Q_{rr}		Q2		7		nC
			Q1		2.3		

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

[2]Independent of operating temperature.

[3]Package limitation current is Q2=19A , Q1=11A.

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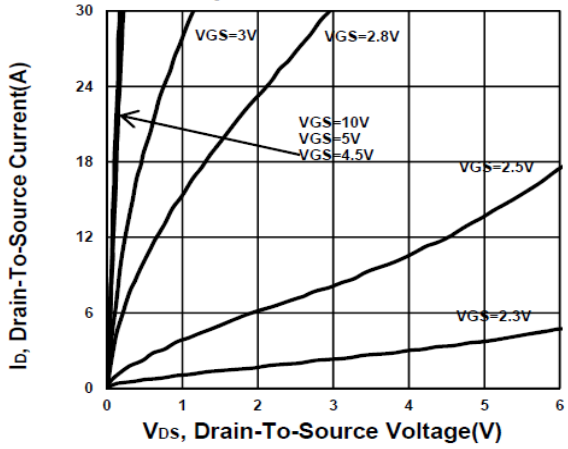
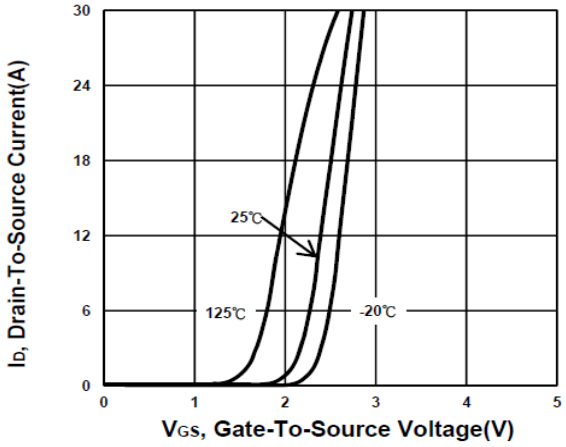
Q2 – Channel : Typical Characteristics

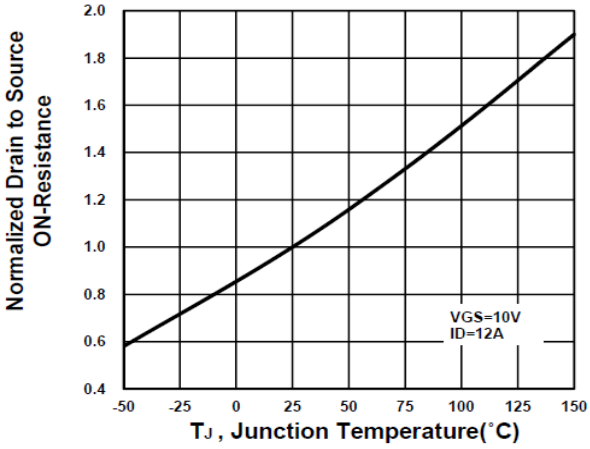
Output Characteristics



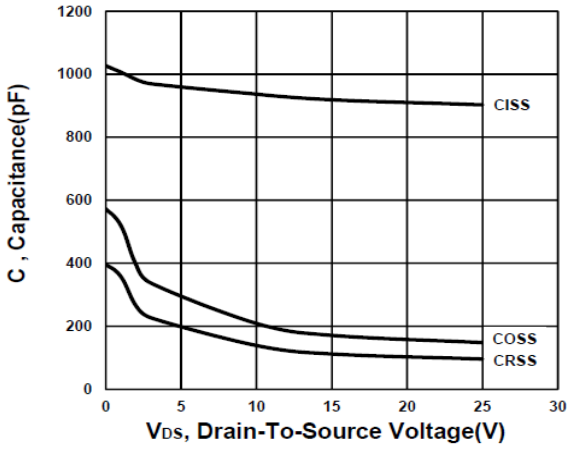
Transfer Characteristics



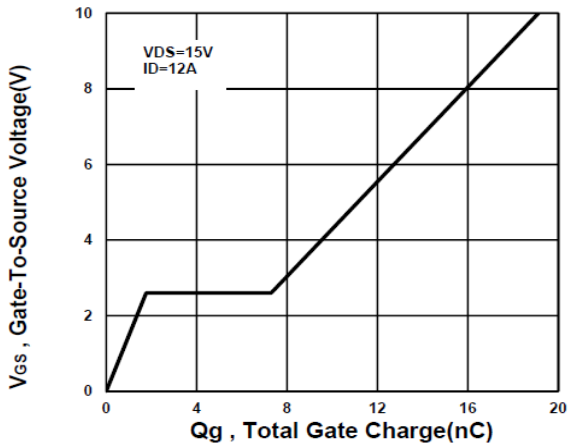
On-Resistance VS Temperature



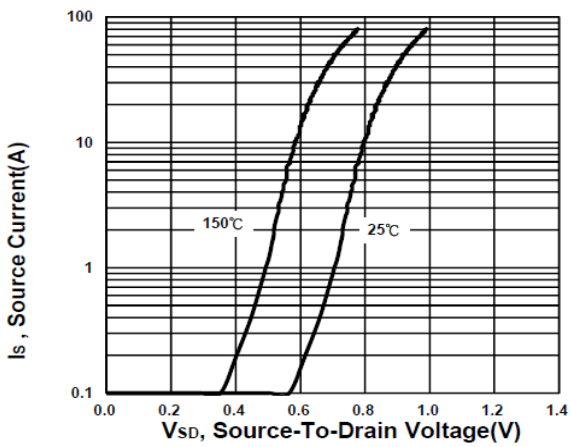
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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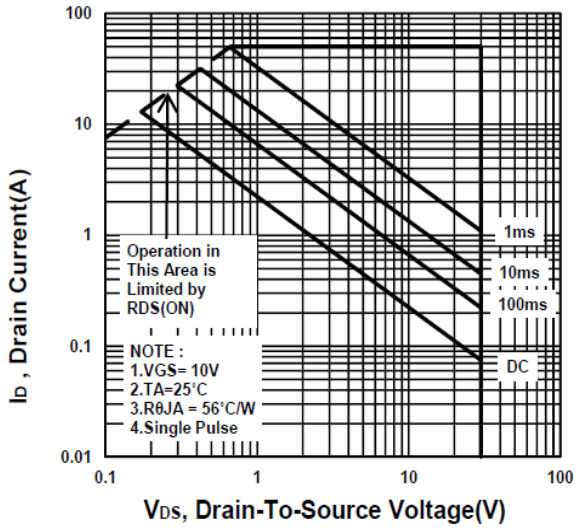
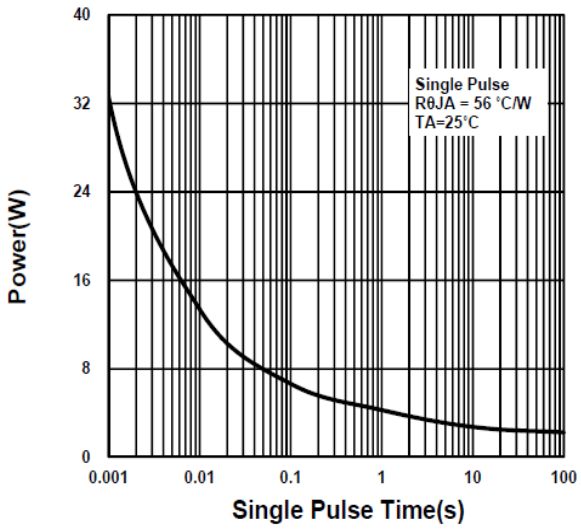
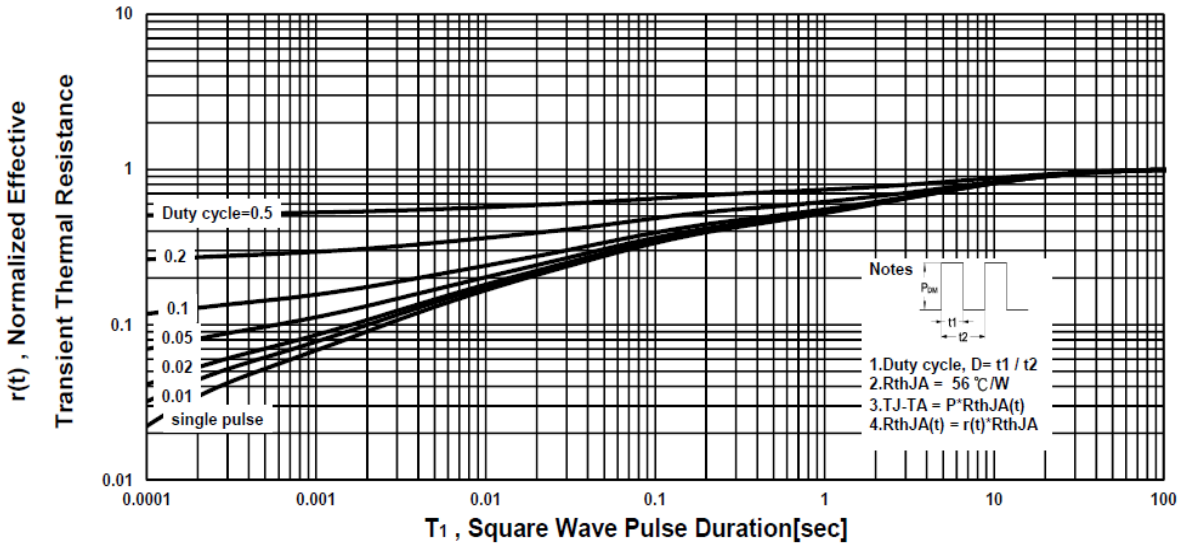
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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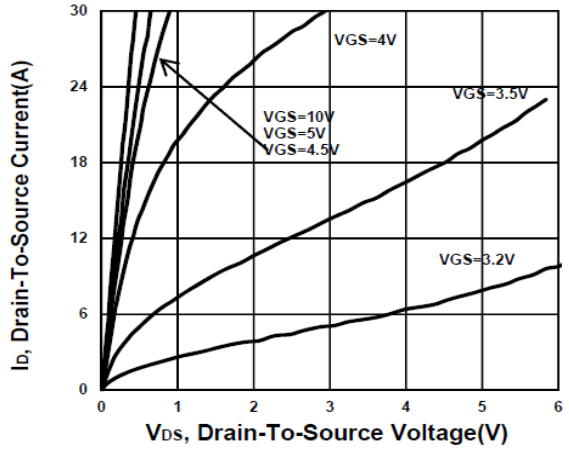
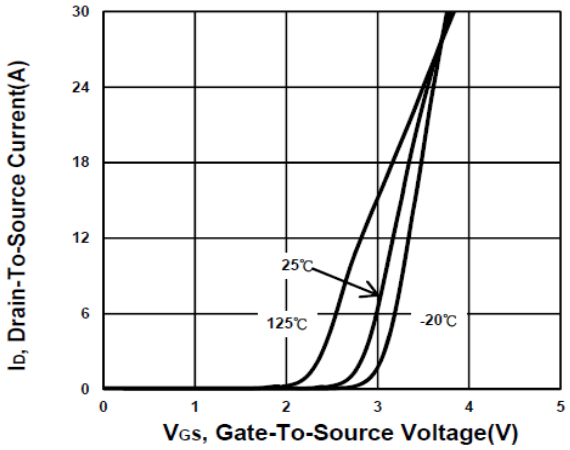
Q1 – Channel : Typical Characteristics

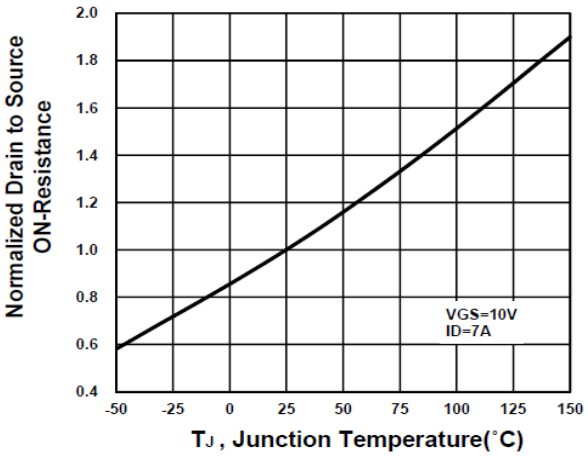
Output Characteristics



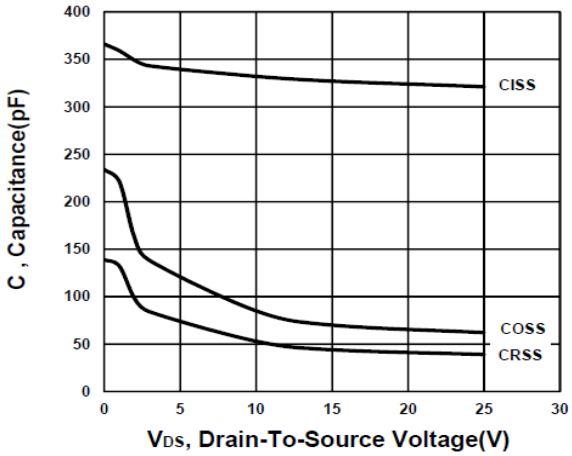
Transfer Characteristics



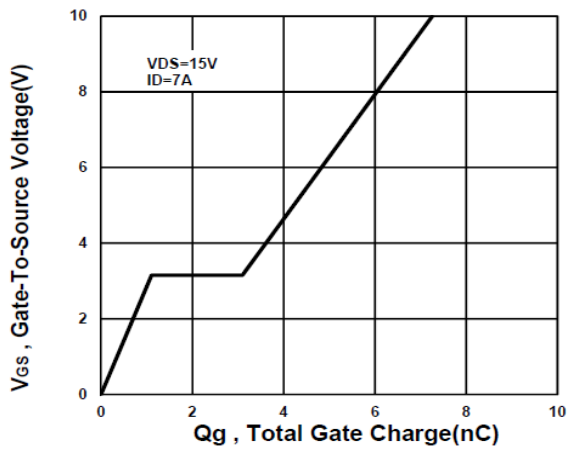
On-Resistance VS Temperature



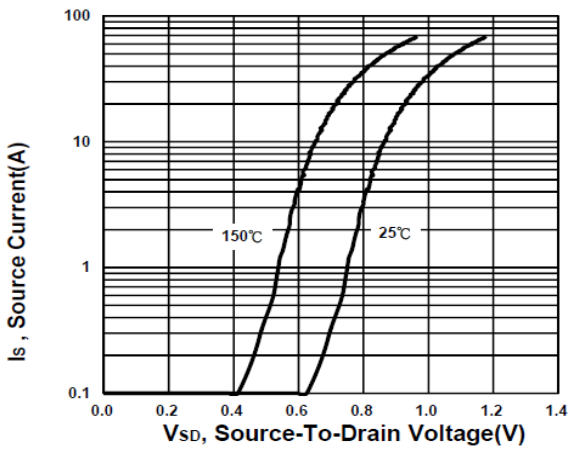
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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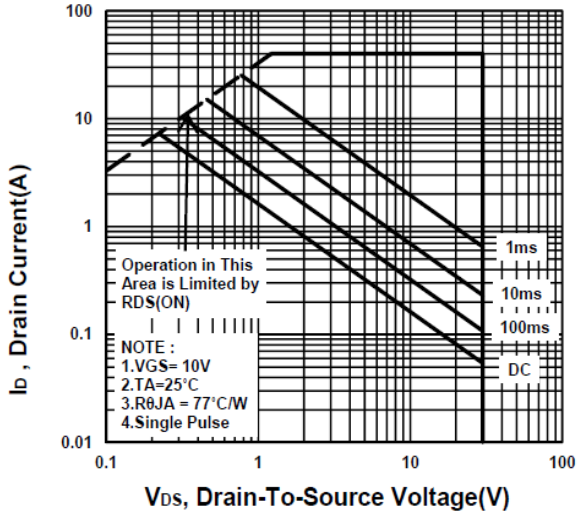
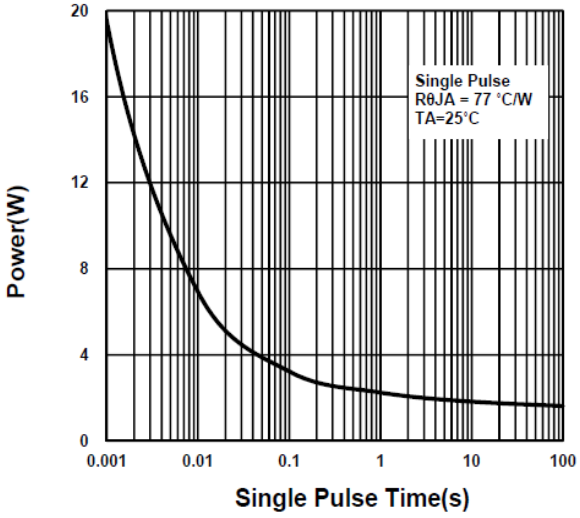
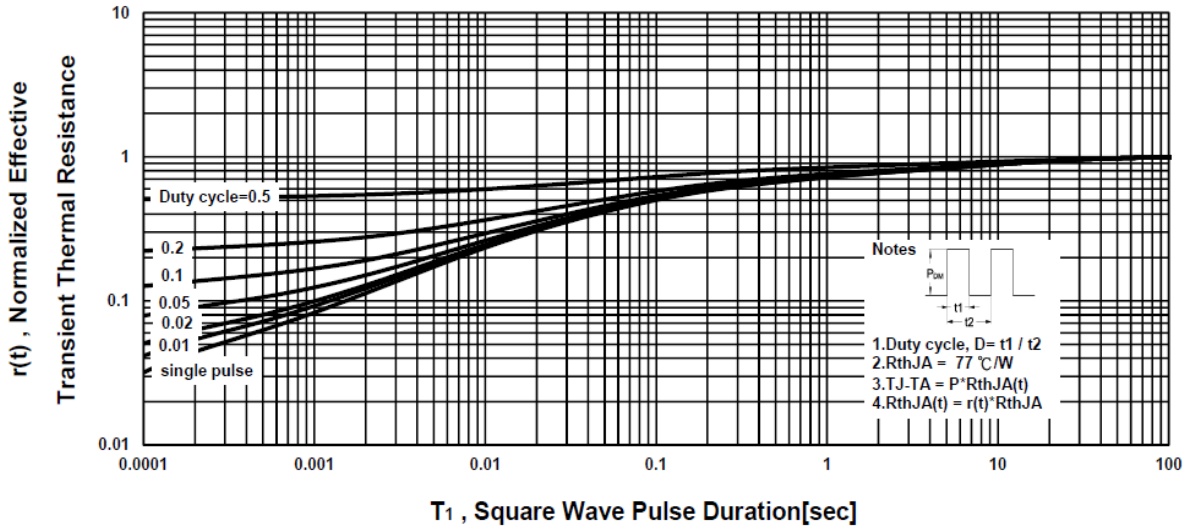
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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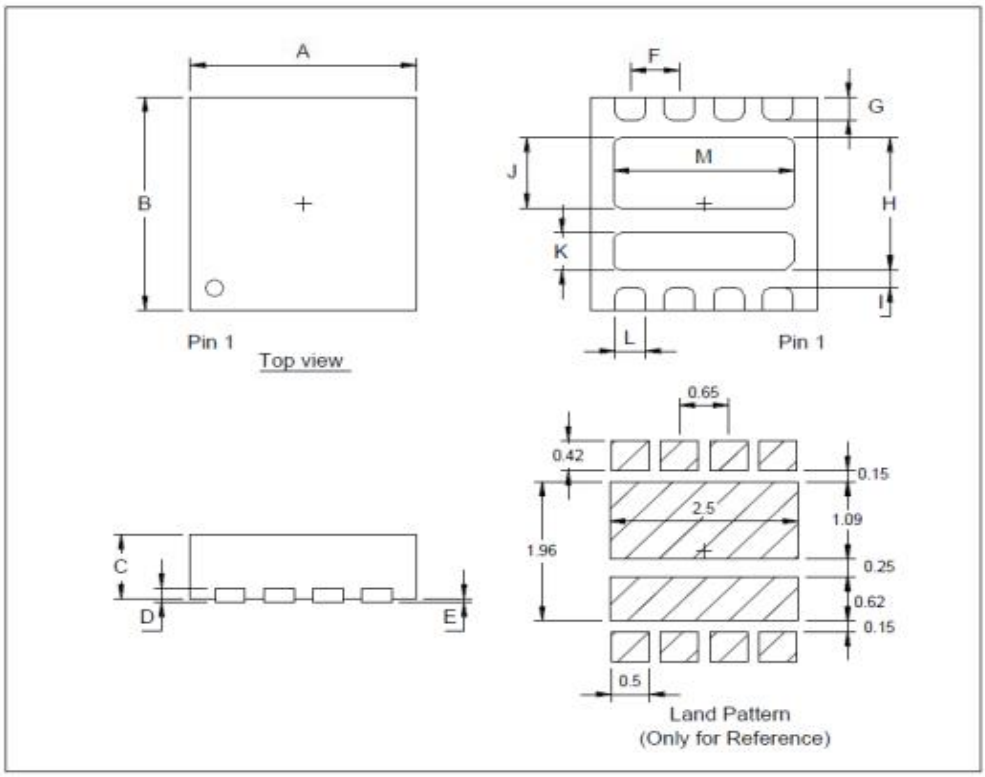
Package Dimension

PDFN 3x3S(上下 Dual) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	2.9	3	3.1	I		0.25	
B	2.9	3	3.1	J	0.94	0.99	1.04
C	0.8	0.85	0.9	K	0.47	0.52	0.57
D	0.195	0.203	0.211	L	0.35	0.4	0.45
E	0		0.05	M	2.35	2.40	2.45
F		0.65					
G	0.27	0.32	0.37				
H		1.86					



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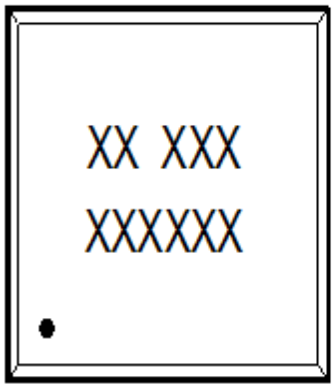
A. Marking Information(此产品代码为：I4)

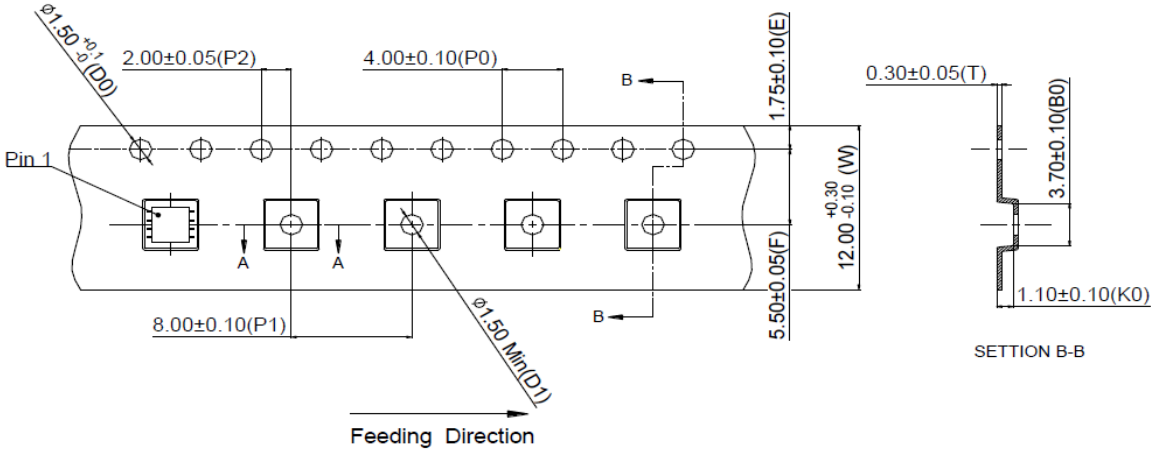


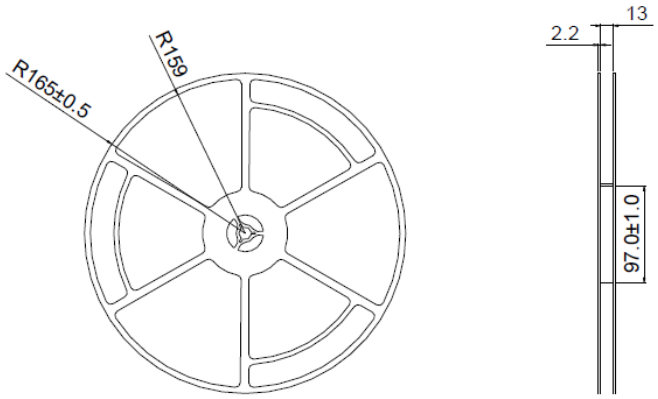
XX(前两码):产品代码

XXX

XXXXXX(后九码):LOT.NO

B. Tape&Reel Information:5000pcs/Reel





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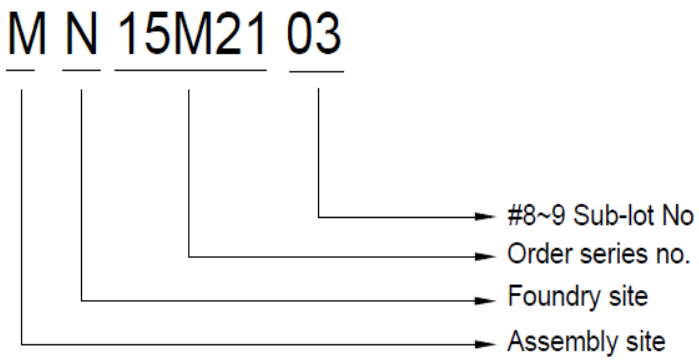
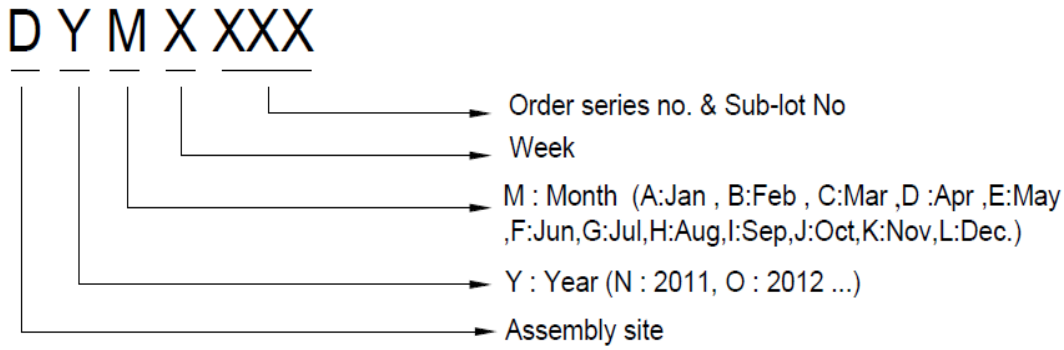
C. Lot.No. & Date Code rule

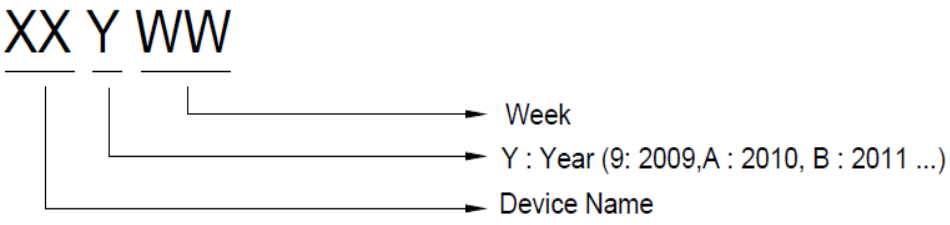
1.LOT.NO.



2.Date Code



3.Date Code (for Small package)



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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	Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
11	Halogen Free label	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