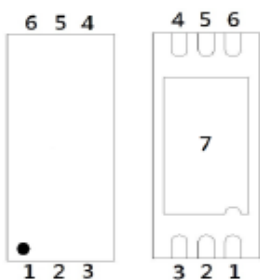


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Dual N-Channel Enhancement Mode MOSFET

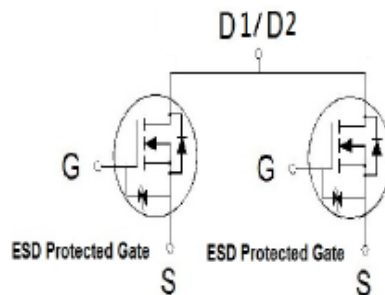
PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	19.5mΩ @ $V_{GS} = 4.5V$	7.6A



1,2:S1
3:G1
5,6:S2
4:G2
7:D1/D2

PDFN 2X5



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ °C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±8	V
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	7.6	A
	$T_A = 70\text{ °C}$		6	
Pulsed Drain Current ¹		I_{DM}	25	
Avalanche Current		I_{AS}	13	
Avalanche Energy	$L = 0.1mH$	E_{AS}	8.9	mJ
Power Dissipation	$T_A = 25\text{ °C}$	P_D	1.9	W
	$T_A = 70\text{ °C}$		1.2	
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	$R_{\theta JA}$		65	°C / W
Junction-to-Case	$R_{\theta JC}$		7	

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25\text{ °C}$.

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.35	0.8	1	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			30	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V			1	μA
		V _{DS} = 10V, V _{GS} = 0V , T _J = 125 °C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 3A		15.4	19.5	mΩ
		V _{GS} = 3.8V, I _D = 3A		16	23	
		V _{GS} = 3.1V, I _D = 3A		17.2	24.5	
		V _{GS} = 2.5V, I _D = 3A		19	28	
		V _{GS} = 1.8V, I _D = 3A		28	40	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 3A		30		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 10V, f = 1MHz		594		pF
Output Capacitance	C _{oss}			102		
Reverse Transfer Capacitance	C _{rss}			76		
Total Gate Charge ²	Q _g (V _{GS} =4.5V)	V _{DS} = 10V, I _D = 3A		7.6		nC
	Q _g (V _{GS} =3.8V)			6.7		
Gate-Source Charge ²	Q _{gs}			0.8		
Gate-Drain Charge ²	Q _{gd}			2.2		
Turn-On Delay Time ²	t _{d(on)}		V _{DD} = 10V I _D ≅ 3A, V _{GS} = 4.5V, R _{GS} = 6Ω		14	
Rise Time ²	t _r			22		
Turn-Off Delay Time ²	t _{d(off)}			34		
Fall Time ²	t _f			13		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)						
Continuous Current	I _S				1.5	A
Forward Voltage ¹	V _{SD}	I _F = 3A, V _{GS} = 0V			1.2	V
Reverse Recovery Time	t _{rr}	I _F = 3A, dI _F /dt = 100A / μS		9.5		nS
Reverse Recovery Charge	Q _{rr}			2.5		nC

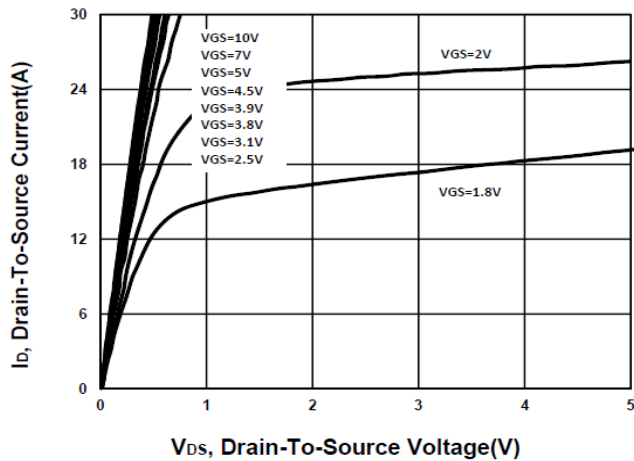
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

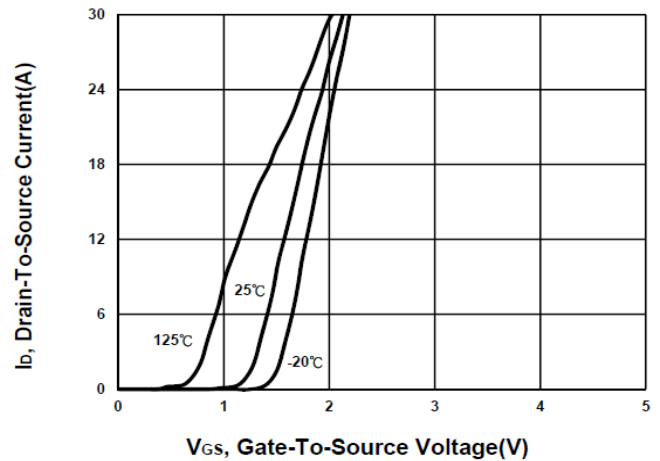
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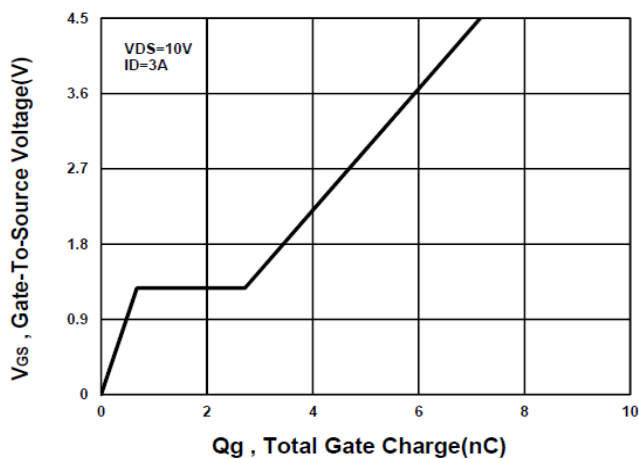
Output Characteristics



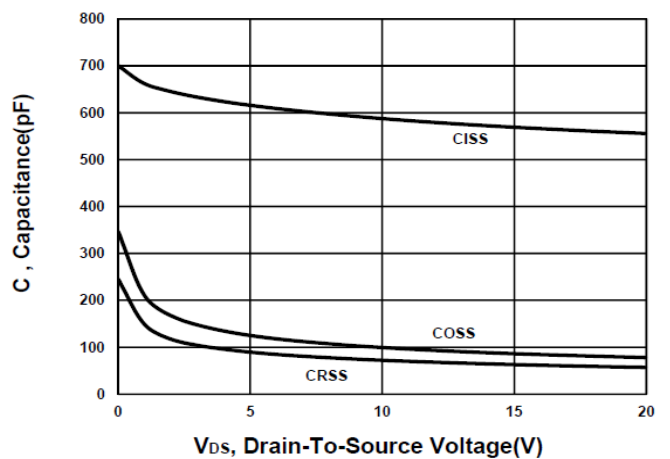
Transfer Characteristics



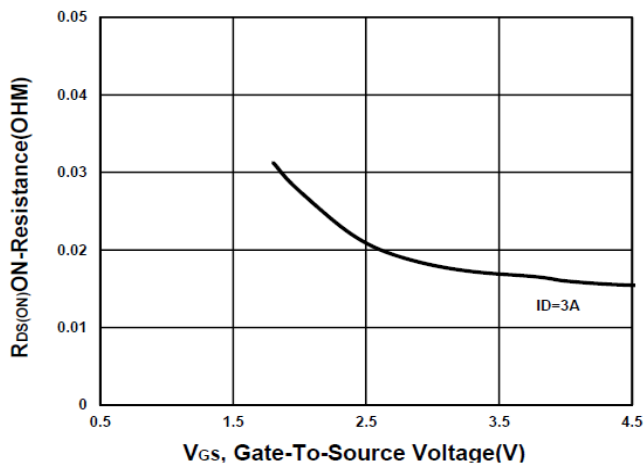
Gate charge Characteristics



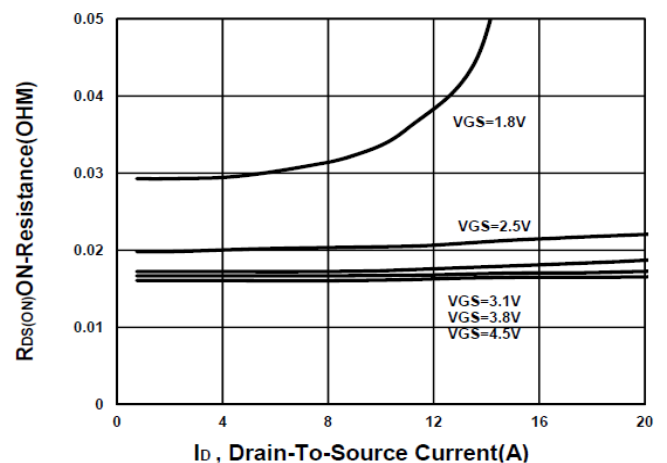
Capacitance Characteristic



On-Resistance VS Gate-To-Source



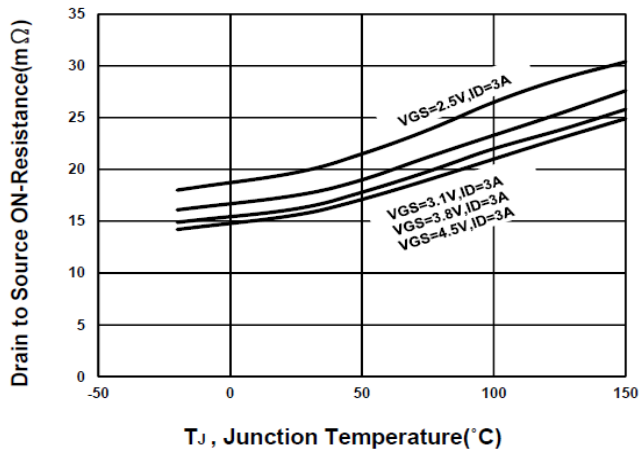
On-Resistance VS Drain Current



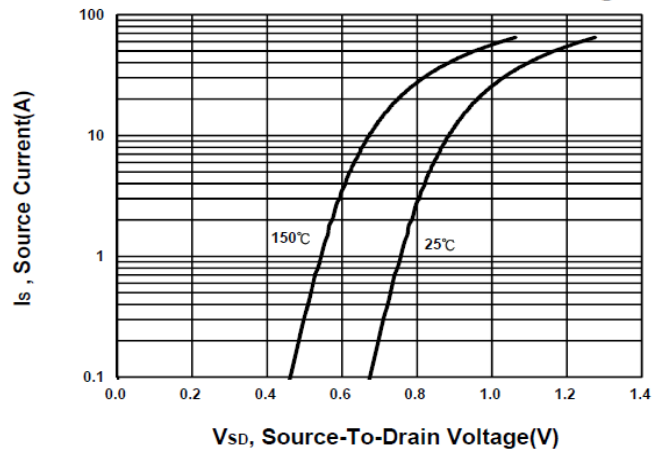
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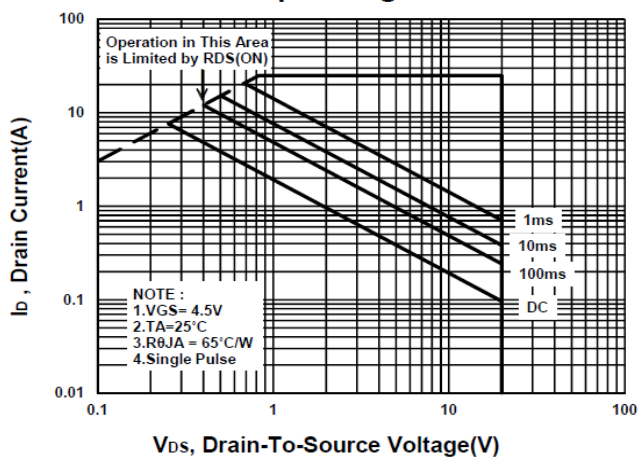
On-Resistance VS Temperature



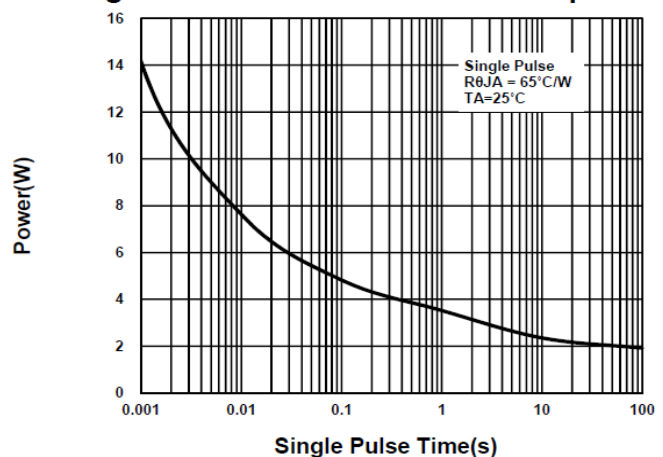
Source-Drain Diode Forward Voltage



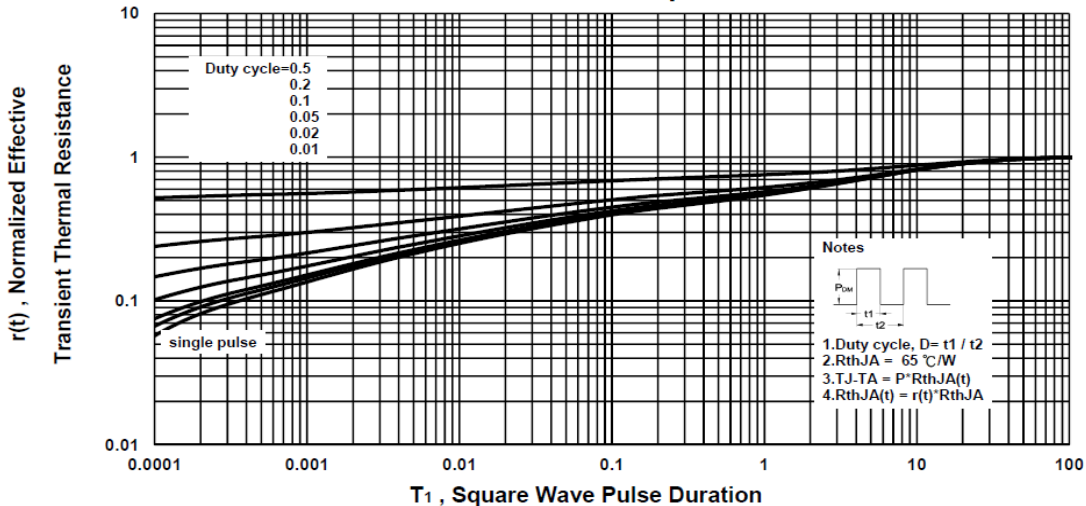
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



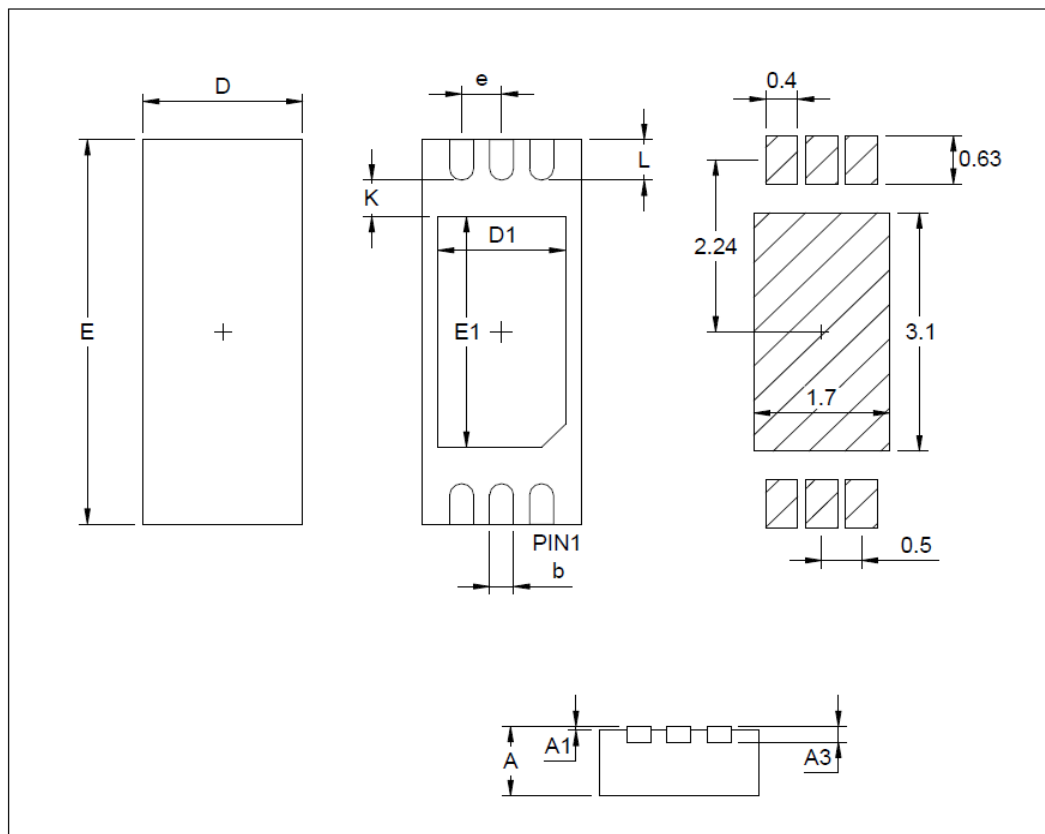
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Package Dimension

PDFN 2x5 MECHANICAL DATA

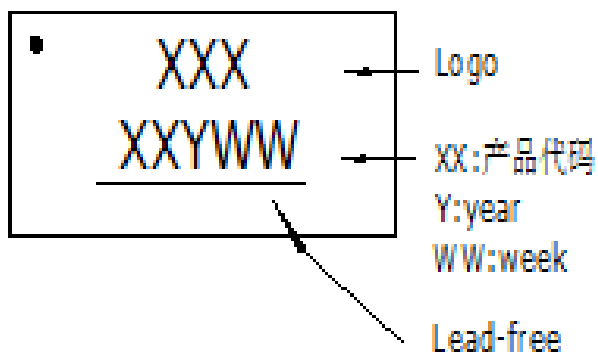
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.7		0.9	k	0.2		
A1	0		0.05	b	0.2		0.3
A3		0.203		e		0.5	
D	1.924		2.076	L	0.424		0.576
E	4.924		5.076				
D1	1.35		1.55				
E1	2.95		3.15				



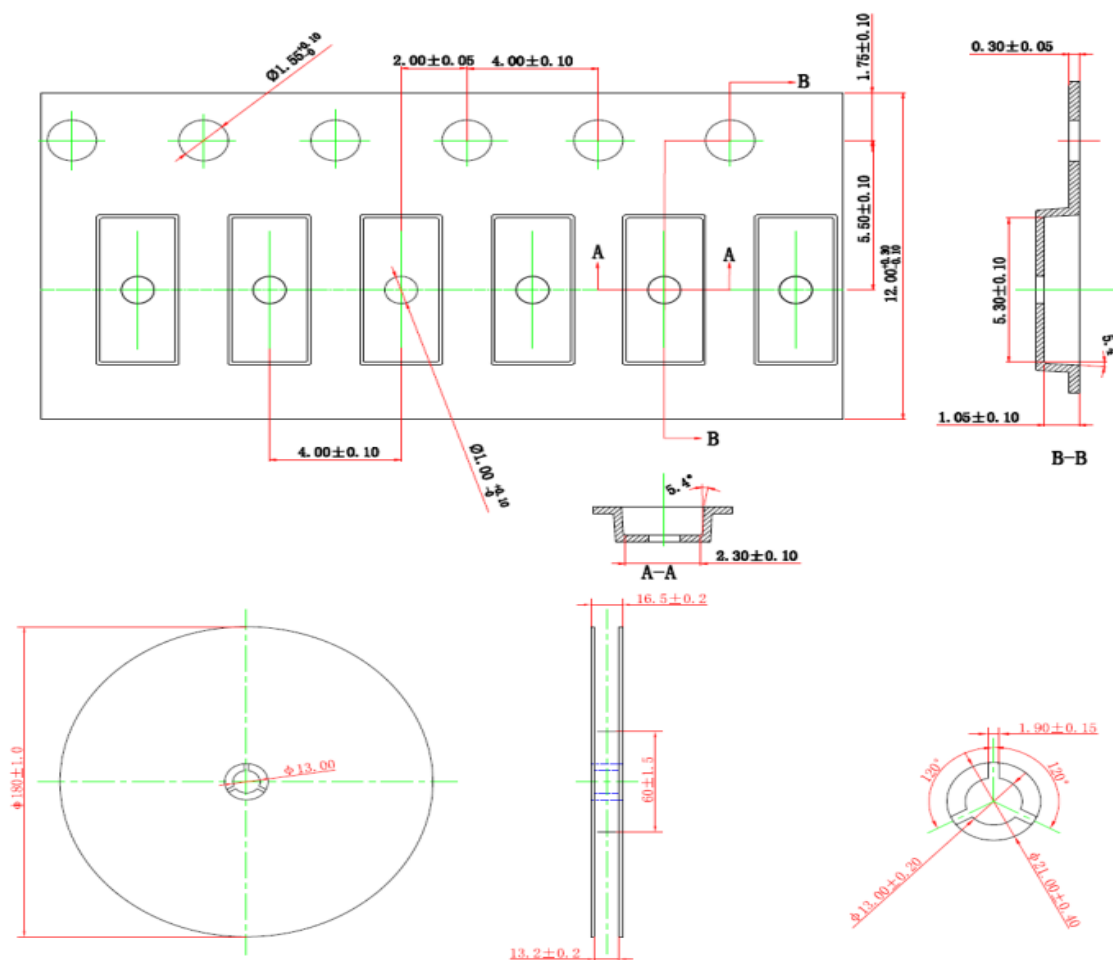
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Dual N-Channel Enhancement Mode MOSFET

A. Marking Information(产品代码为: 97)



B. Tape&Reel Information:3000pcs/Reel



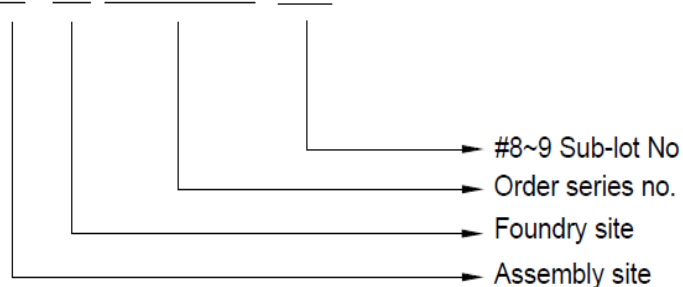
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C. Lot.No. & Date Code rule

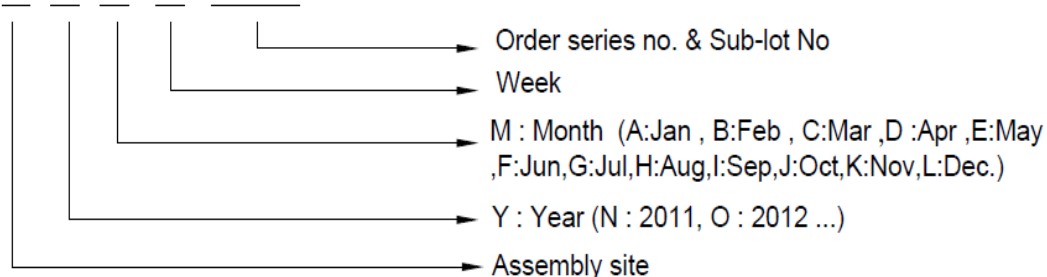
1.LOT.NO.

M N 15M21 03



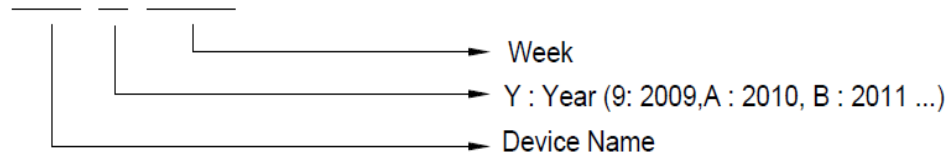
2.Date Code

D Y M X XXX



3.Date Code (for Small package)

XX Y WW



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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"0"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