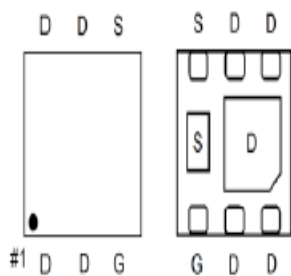


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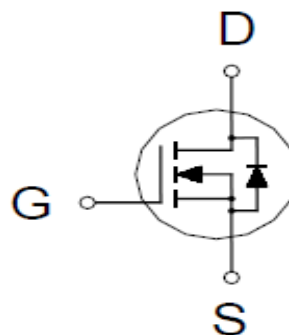
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	9m Ω @ $V_{GS} = 4.5V$	11A



PDFN 2X2S



100% RG Test
100% UIL Test

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	V
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	11	A
	$T_A = 70\text{ }^{\circ}\text{C}$		9	
Pulsed Drain Current ¹		I_{DM}	33	
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.3	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$R_{\theta JA}$		60	$^{\circ}\text{C} / \text{W}$

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.

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N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^{\circ}\text{C}$, 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	0.45	0.65	0.9	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V			1	μA
		V _{DS} = 10V, V _{GS} = 0V, T _J = 55 °C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 11A		6.5	9	mΩ
		V _{GS} = 2.5V, I _D = 9A		7.9	11	
		V _{GS} = 1.8V , I _D = 9A		10.5	15	
Forward Transconductance ¹	g _{fs}	V _{DS} = 10V, I _D = 18A		93		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 10V, f = 1MHz		1547		pF
Output Capacitance	C _{oss}			227		
Reverse Transfer Capacitance	C _{rss}			203		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		2.4		Ω
Total Gate Charge ²	Q _g (V _{GS} =4.5V)	V _{DS} = 10V , I _D = 11A		22		nC
	Q _g (V _{GS} =2.5V)			13		
Gate-Source Charge ²	Q _{gs}			1.1		
Gate-Drain Charge ²	Q _{gd}			7.8		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = 10V, I _D ≅ 11A, V _{GEN} = 4.5V, R _G = 6Ω		25		nS
Rise Time ²	t _r			20		
Turn-Off Delay Time ²	t _{d(off)}			62		
Fall Time ²	t _f			45		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)						
Continuous Current	I _S				1.5	A
Forward Voltage ¹	V _{SD}	I _F =11A, V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}	I _F = 11A, dI _F /dt = 100A / μS		9.1		nS
Reverse Recovery Charge	Q _{rr}			2.2		nC

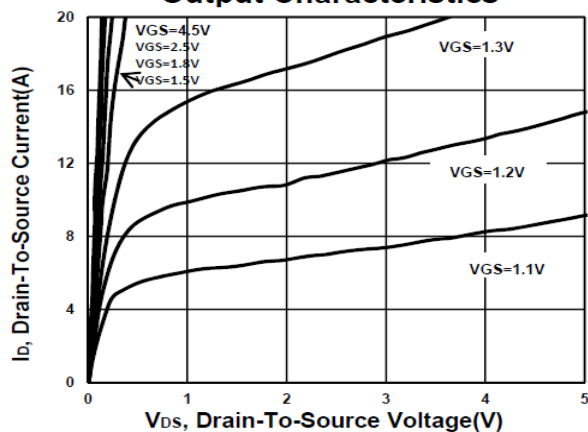
¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

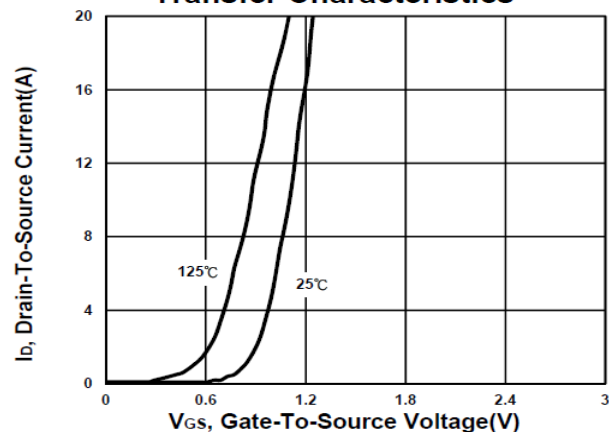
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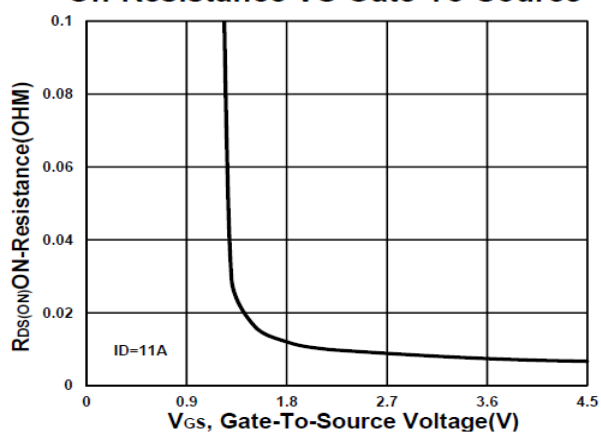
Output Characteristics



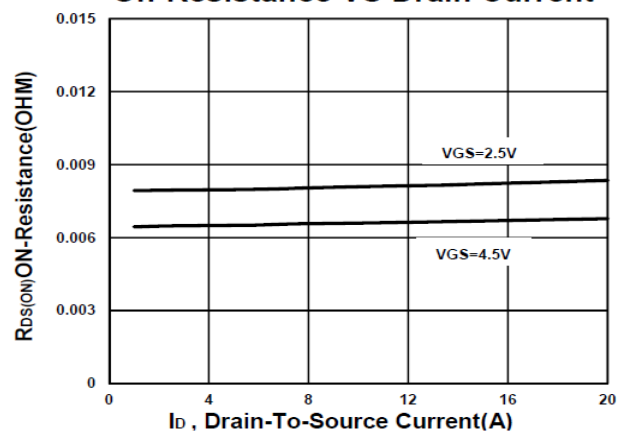
Transfer Characteristics



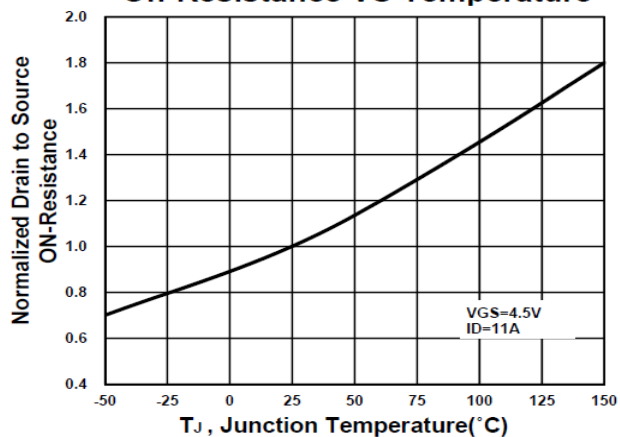
On-Resistance VS Gate-To-Source



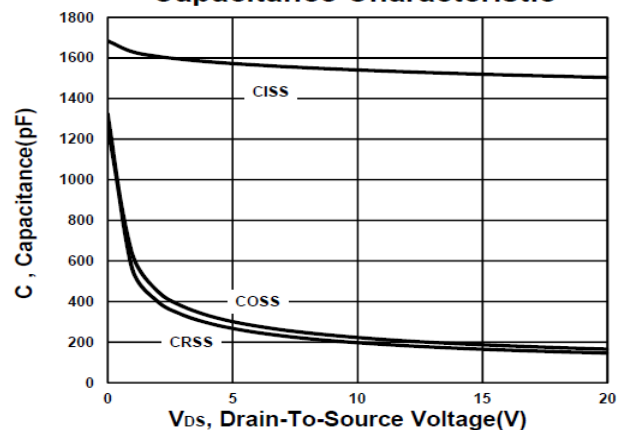
On-Resistance VS Drain Current



On-Resistance VS Temperature



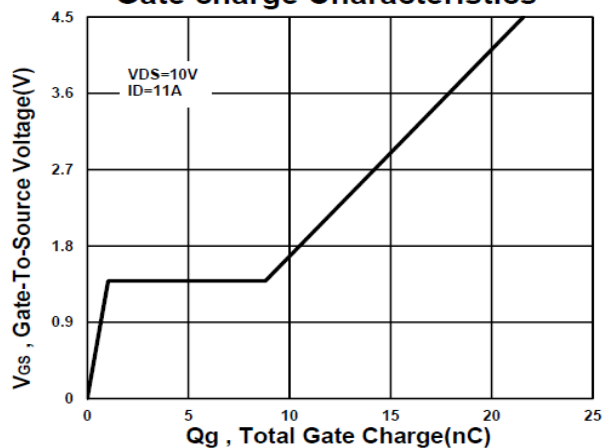
Capacitance Characteristic



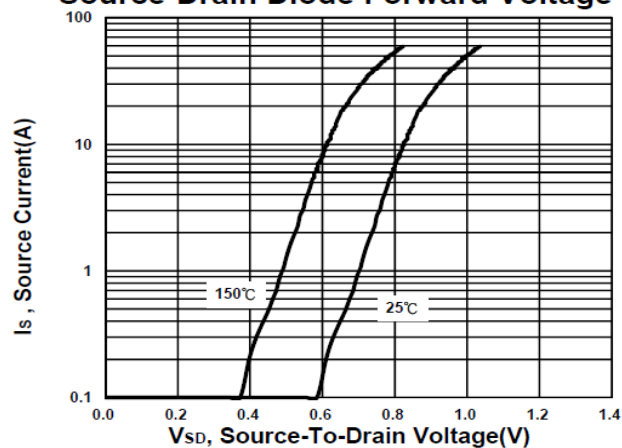
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N-Channel Enhancement Mode MOSFET

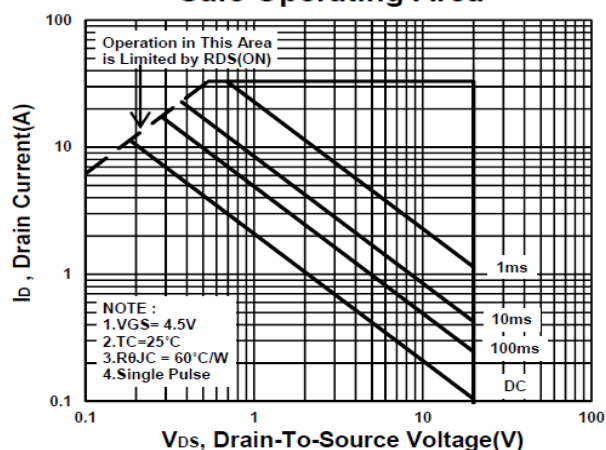
Gate charge Characteristics



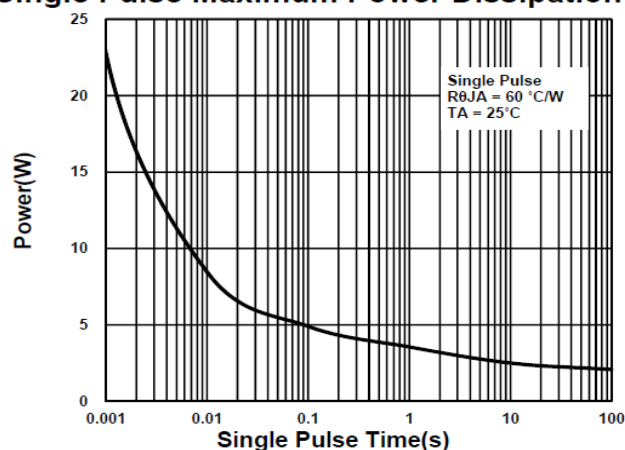
Source-Drain Diode Forward Voltage



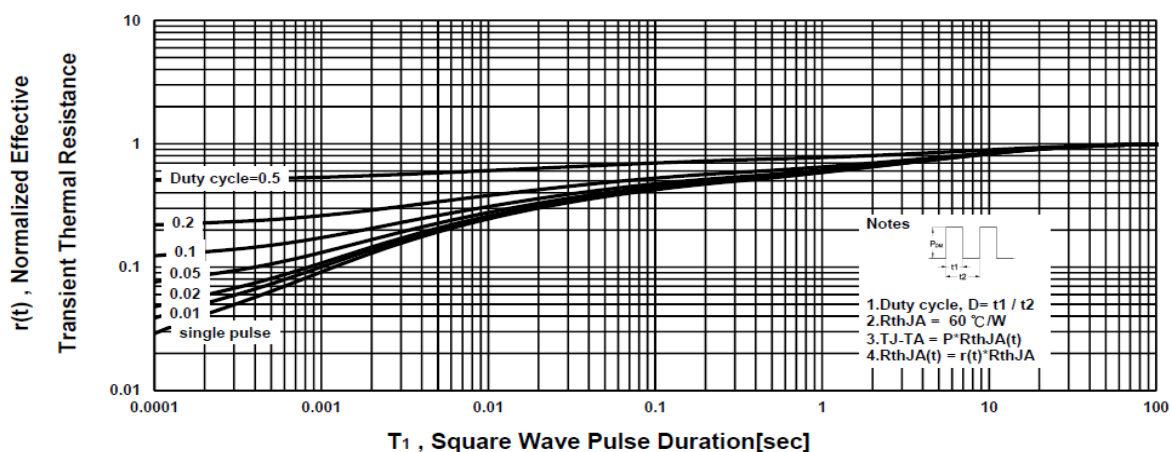
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



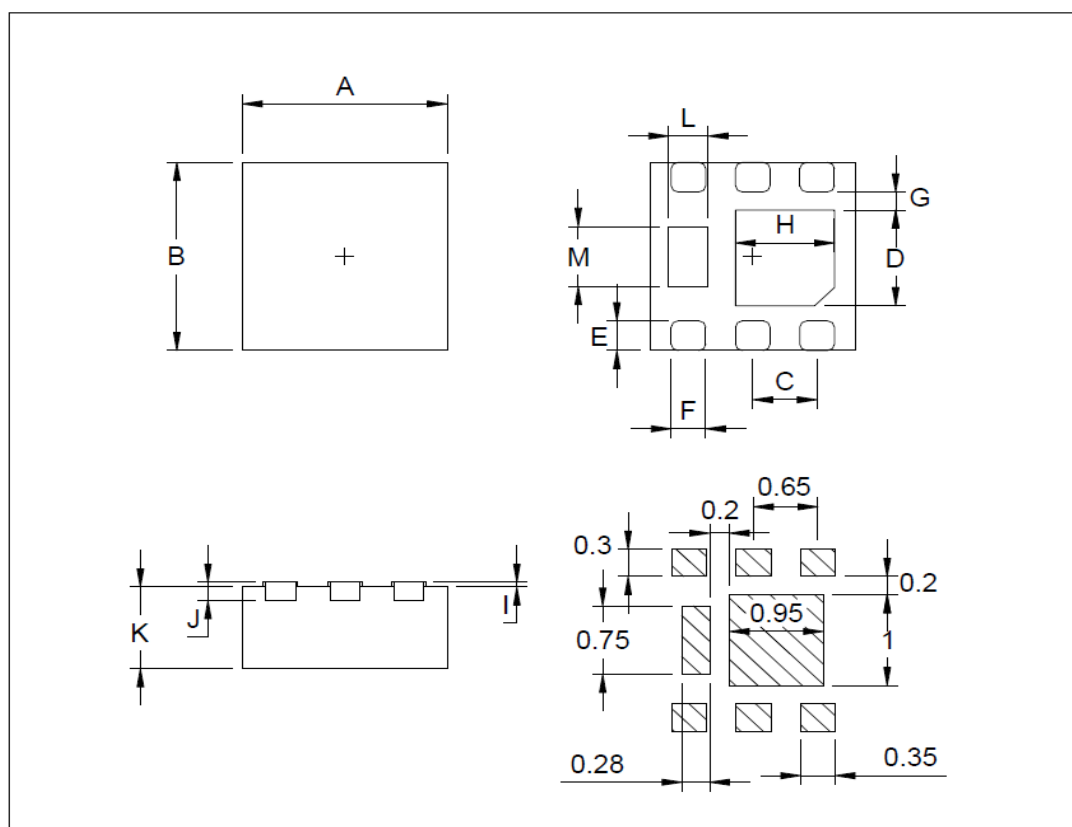
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N-Channel Enhancement Mode MOSFET

Package Dimension

PDFN 2x2S MECHANICAL DATA

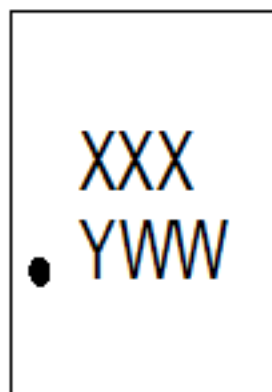
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	1.9		2.1	H	0.8		1.1
B	1.9		2.1	I	0		0.05
C	0.55	0.65	0.75	J		0.203	
D	0.85		1.1	K	0.7		0.8
E	0.174	0.25	0.326	L	0.2		0.4
F	0.25		0.35	M	0.46		0.85
G		0.2					



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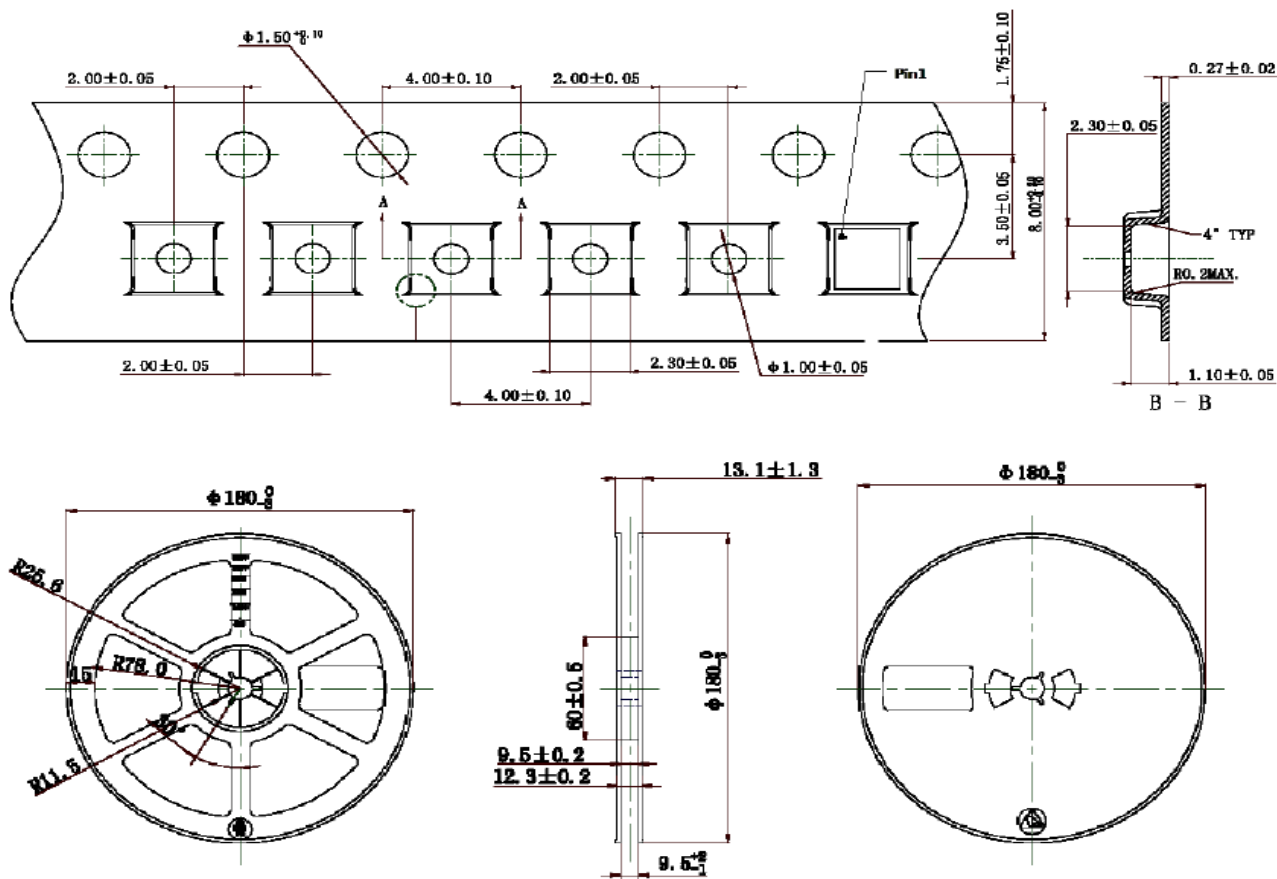
N-Channel Enhancement Mode MOSFET

A. Marking Information(此产品代码为: C4)



XX(前两位):产品代码
X:封装厂代码
Y:year
WW:week

B. Tape&Reel Information:3000pcs/Reel



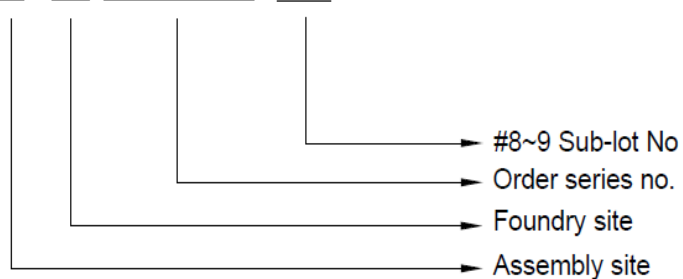
PB5A2BA

N-Channel Enhancement Mode MOSFET

C. Lot.No. & Date Code rule

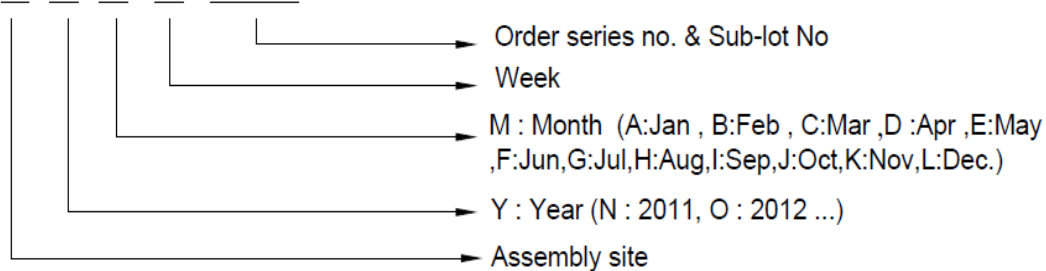
1.LOT.NO.

M N 15M21 03



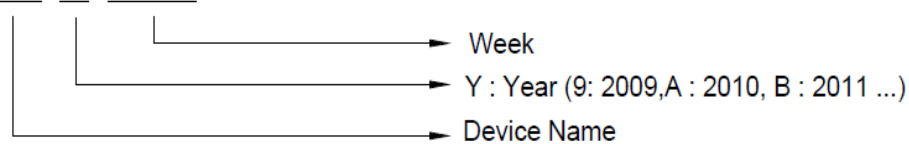
2.Date Code

D Y M X XXX



3.Date Code (for Small package)

XX Y WW



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N-Channel Enhancement Mode MOSFET

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