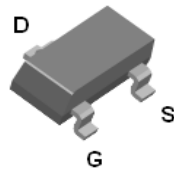


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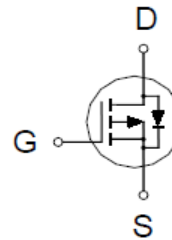
P-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	40mΩ @ $V_{GS} = -4.5V$	-4A



SOT-23(S)



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	I_D	$T_A = 25\text{ °C}$	-4
		$T_A = 70\text{ °C}$	-3
Pulsed Drain Current ¹	I_{DM}	-21	A
Power Dissipation	P_D	$T_A = 25\text{ °C}$	0.9
		$T_A = 70\text{ °C}$	0.6
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	$R_{\theta JA}$		126	°C / 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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P-Channel Enhancement Mode MOSFET

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

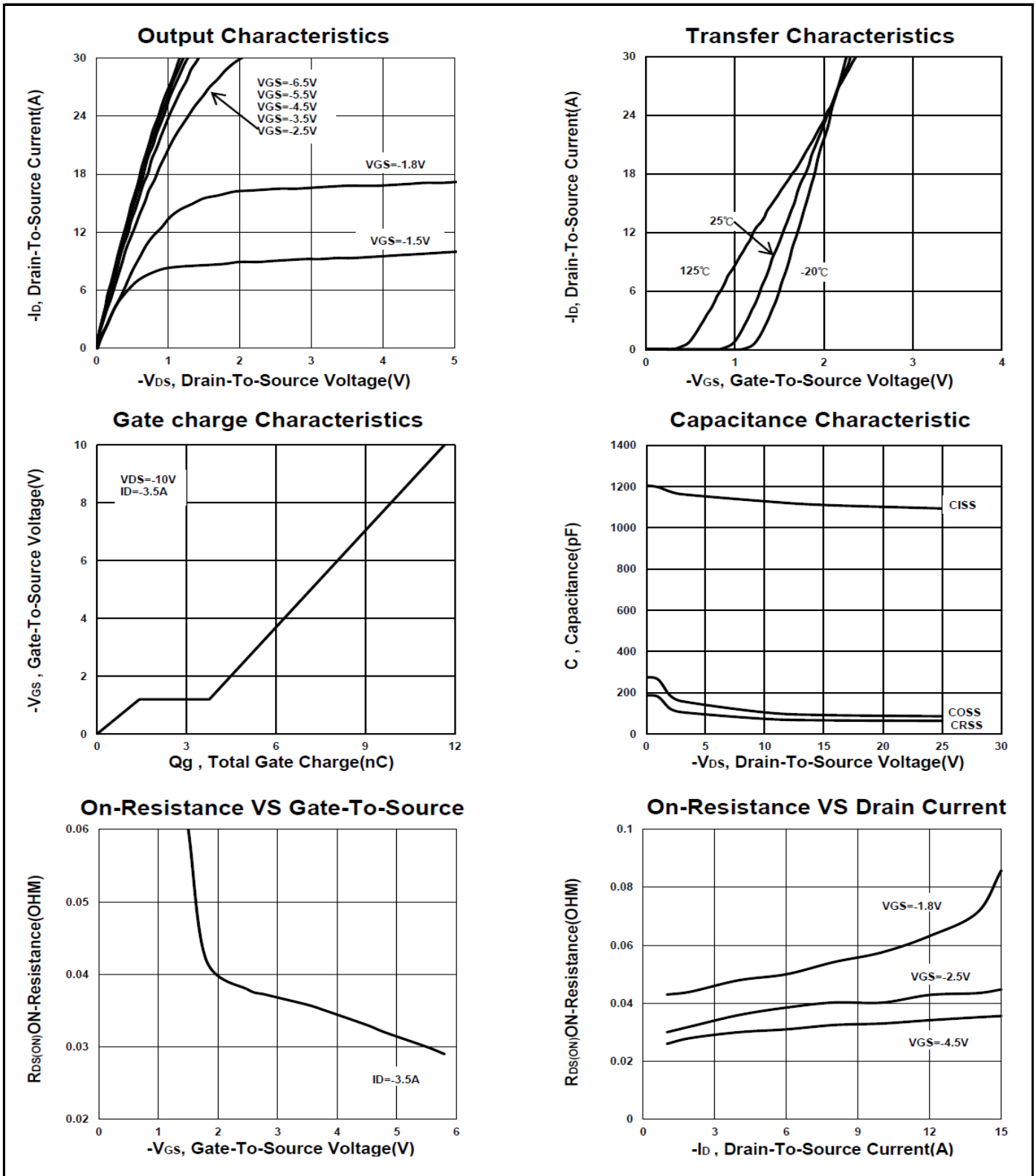
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.3	-0.6	-1	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	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} = -1.5V, I _D = -1A		67	100	mΩ
		V _{GS} = -1.8V, I _D = -2A		50	71	
		V _{GS} = -2.5V, I _D = -3.5A		40	55	
		V _{GS} = -4.5V, I _D = -3.5A		33	40	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -3.5A		17		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -10V, f = 1MHz		1157		pF
Output Capacitance	C _{oss}			106		
Reverse Transfer Capacitance	C _{rss}			76		
Total Gate Charge ²	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -3.5A		11.9		nC
Gate-Source Charge ²	Q _{gs}			1.6		
Gate-Drain Charge ²	Q _{gd}			2.5		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = -10V, V _{GS} = -4.5V I _D ≅ -3.5A, R _G = 6Ω		22		nS
Rise Time ²	t _r			20		
Turn-Off Delay Time ²	t _{d(off)}			59		
Fall Time ²	t _f			13		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTIC (T_J = 25 °C)						
Continuous Current	I _S				-0.6	A
Forward Voltage ¹	V _{SD}	I _F = -3.5A, V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -3.5A, dI _F /dt = 100A / μS		11.4		nS
Reverse Recovery Charge	Q _{rr}				2.9	

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

²Independent of operating temperature.

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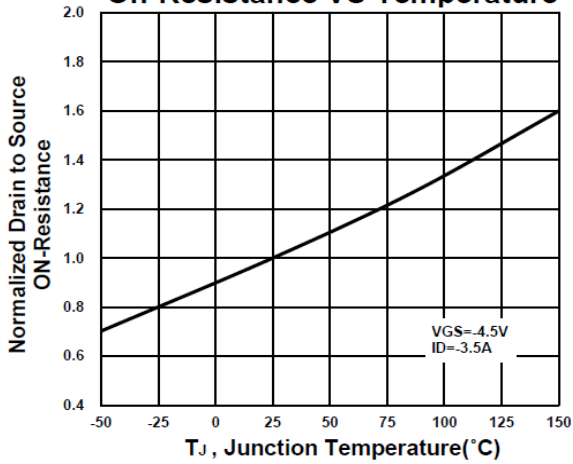
P-Channel Enhancement Mode MOSFET



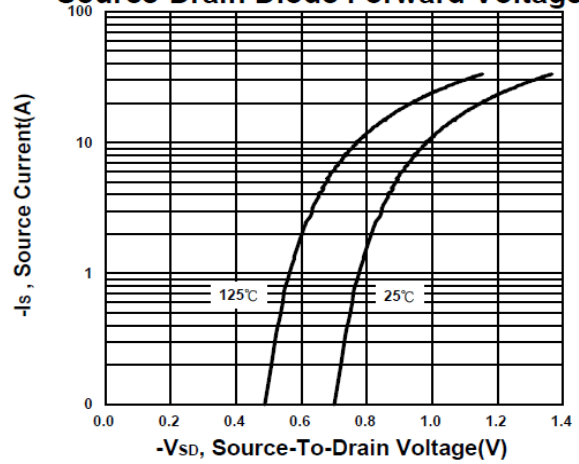
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P-Channel Enhancement Mode MOSFET

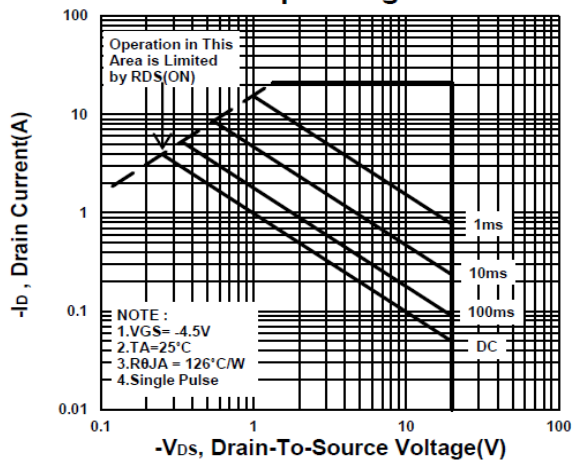
On-Resistance VS Temperature



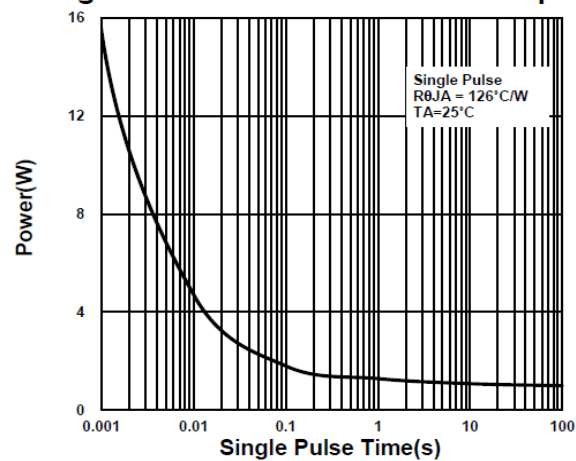
Source-Drain Diode Forward Voltage



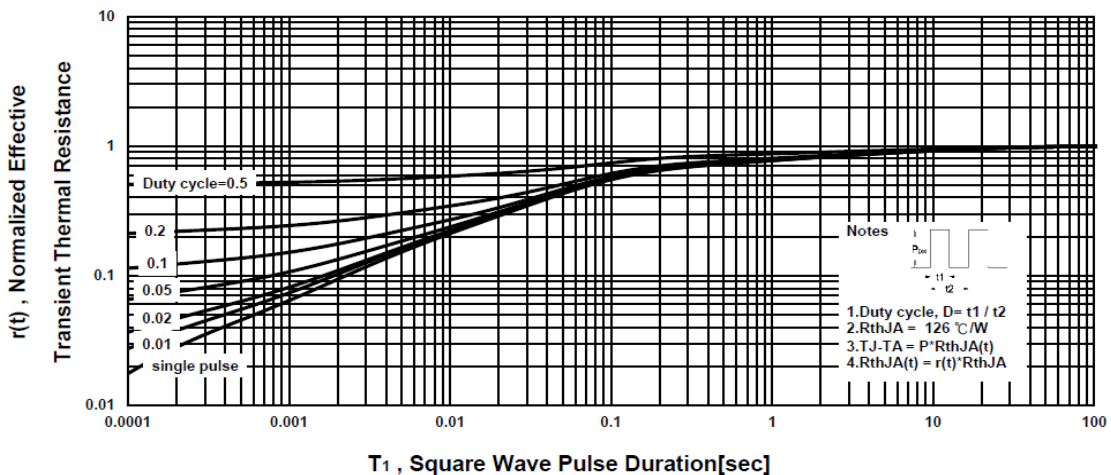
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



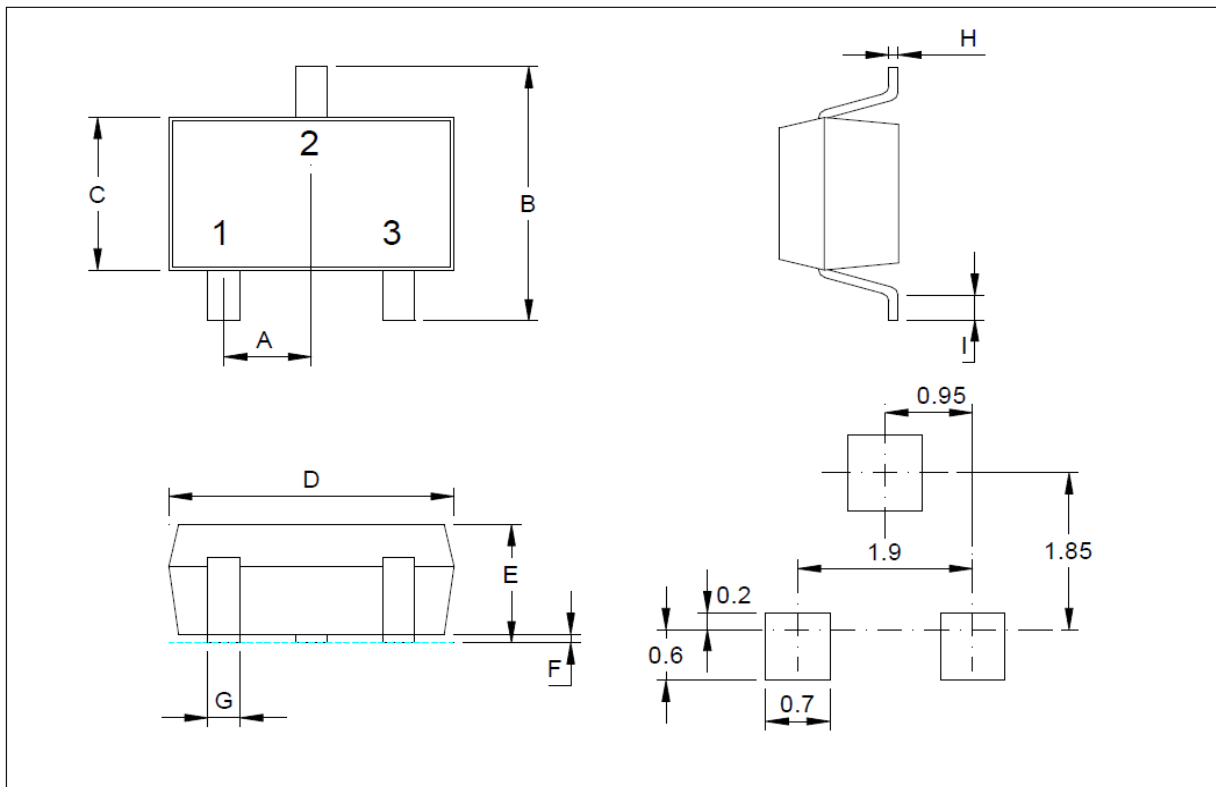
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P-Channel Enhancement Mode MOSFET

Package Dimension

SOT-23 (S) MECHANICAL DATA

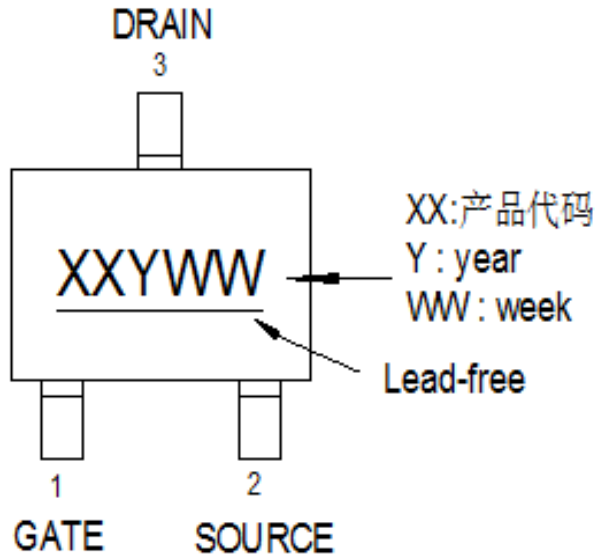
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.9		1	H	0.08		0.2
B	2.25		2.85	I	0.15		0.6
C	1.2		1.4				
D	2.8		3.04				
E	0.89		1.2				
F	0		0.1				
G	0.3		0.5				



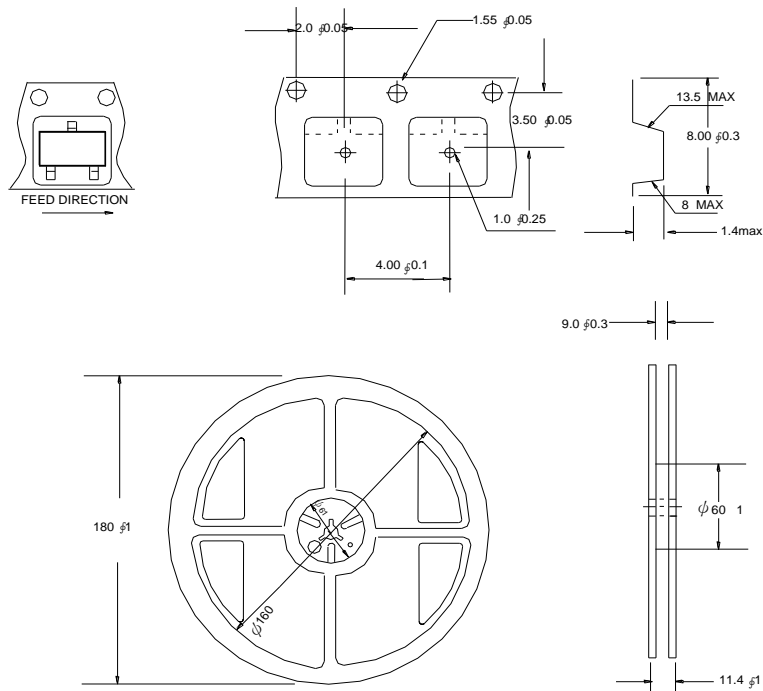
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A. Marking Information (此产品代码为：77)



B. Tape & Reel Information: 3000pcs/Reel



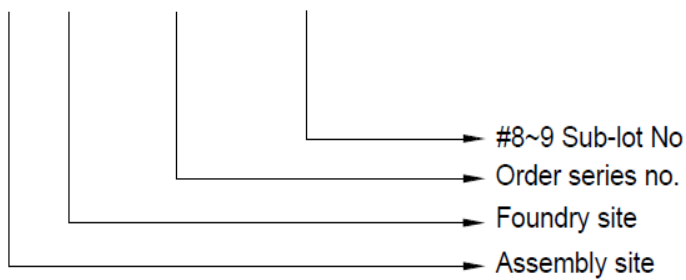
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P-Channel Enhancement Mode MOSFET

C. Lot.No. & Date Code rule

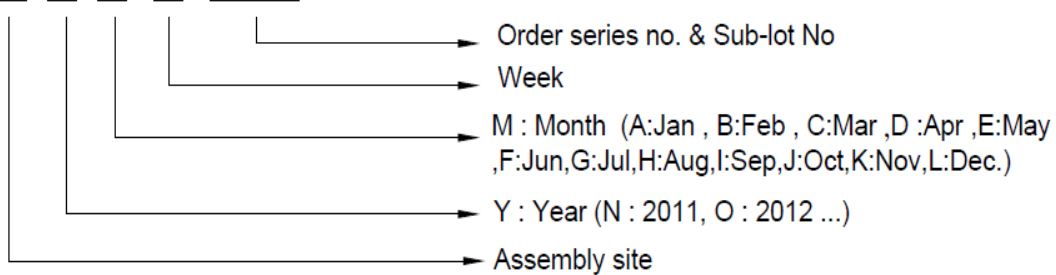
1.LOT.NO.

M N 15M21 03



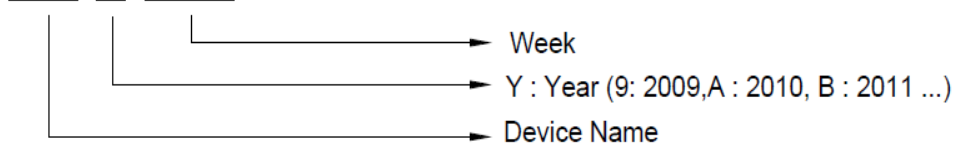
2.Date Code

D Y M X XXX



3.Date Code (for Small package)

XX Y WW





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P-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