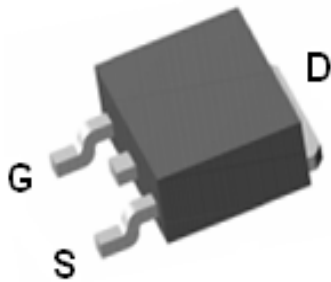


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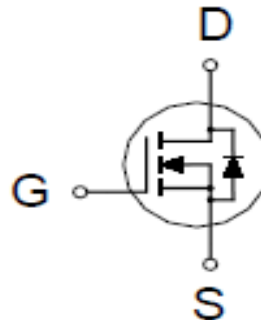
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	25m Ω @ $V_{GS} = 10V$	21A



TO-252



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ²	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	21	A
	$T_C = 100\text{ }^{\circ}\text{C}$		13	
Pulsed Drain Current ¹		I_{DM}	50	
Avalanche Current		I_{AS}	13	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	8.4	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	24	W
	$T_C = 100\text{ }^{\circ}\text{C}$		9.6	
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	$R_{\theta JA}$		62.5	$^{\circ}\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		5.2	

¹Pulse width limited by maximum junction temperature.

²Package limitation current is 15A.

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ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.7	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$			1	μA
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 125^\circ C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 12A$		20	35	m Ω
		$V_{GS} = 10V, I_D = 18A$		18	25	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 18A$		32		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$		431		pF
Output Capacitance	C_{oss}			58		
Reverse Transfer Capacitance	C_{rss}			36		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		3.9		Ω
Total Gate Charge ²	$Q_{g(VGS=10V)}$	$V_{DS} = 20V, I_D = 18A$		10		nC
	$Q_{g(VGS=4.5V)}$			5.4		
Gate-Source Charge ²	Q_{gs}			1.2		
Gate-Drain Charge ²	Q_{gd}			3.1		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 20V, I_D \cong 18A, V_{GS} = 10V, R_{GEN} = 6\Omega$		10		nS
Rise Time ²	t_r			40		
Turn-Off Delay Time ²	$t_{d(off)}$			57		
Fall Time ²	t_f			28		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)						
Continuous Current ³	I_S				18	A
Forward Voltage ¹	V_{SD}	$I_F = 18A, V_{GS} = 0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F = 18A, dI_F/dt = 100A / \mu S$		9.6		nS
Reverse Recovery Charge	Q_{rr}			2.4		nC

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

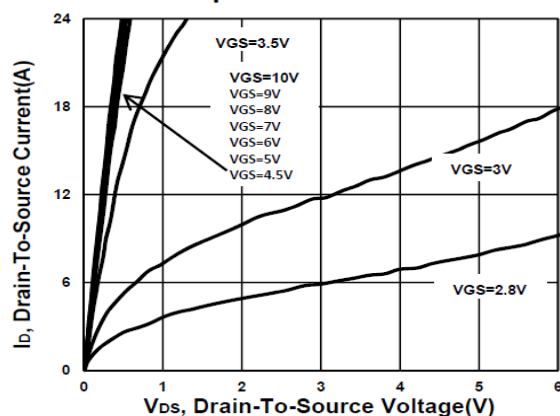
²Independent of operating temperature.

³Package limitation current is 15A.

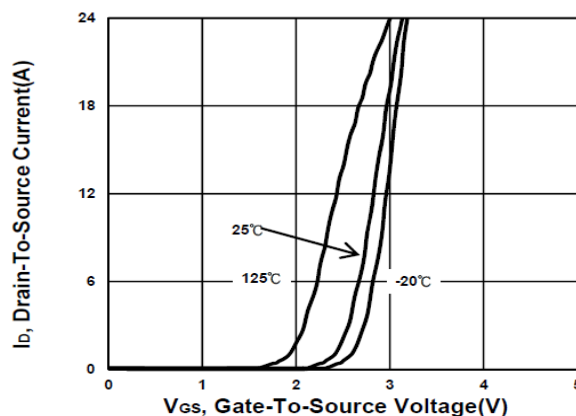
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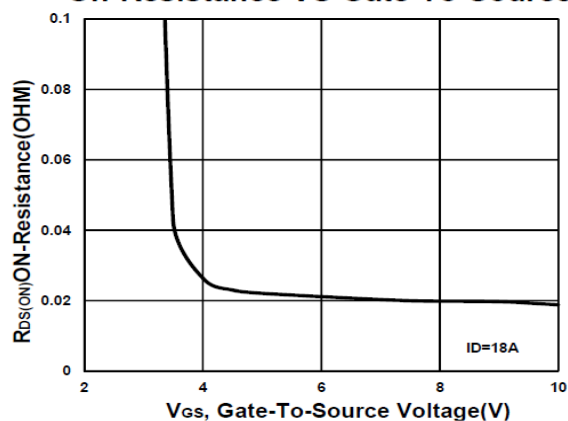
Output Characteristics



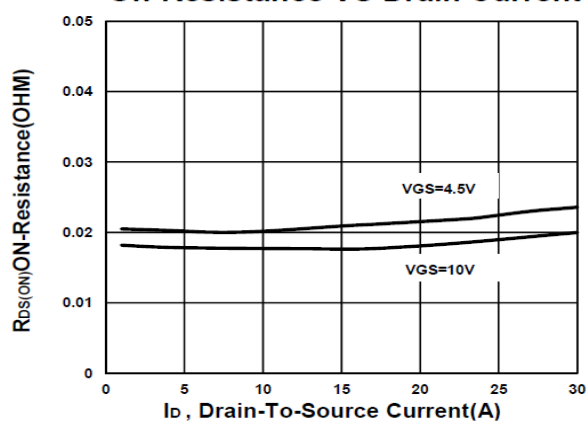
Transfer Characteristics



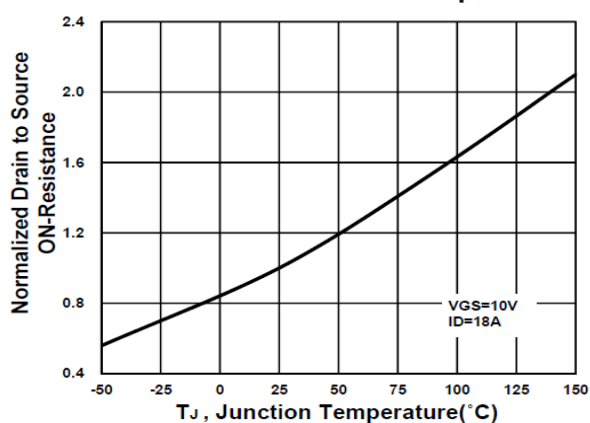
On-Resistance VS Gate-To-Source



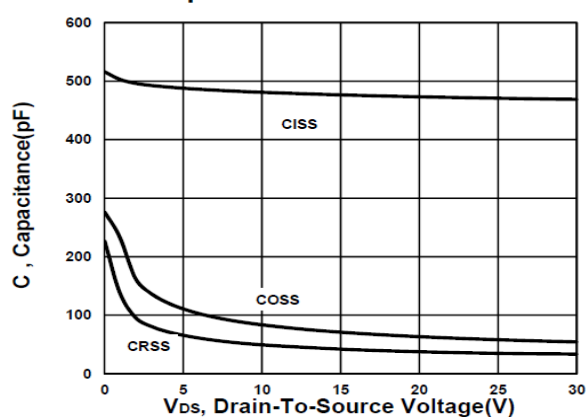
On-Resistance VS Drain Current



On-Resistance VS Temperature



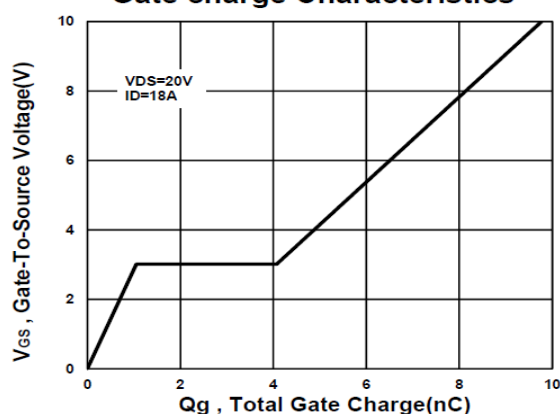
Capacitance Characteristic



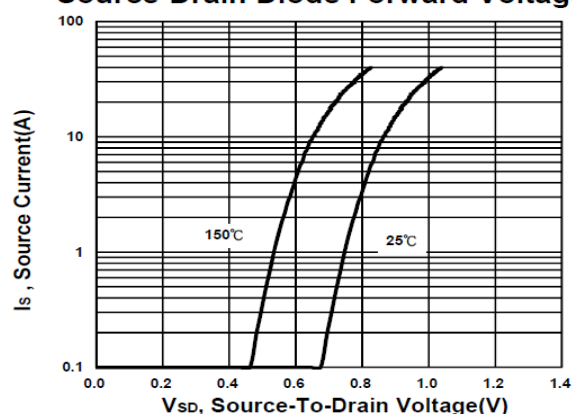
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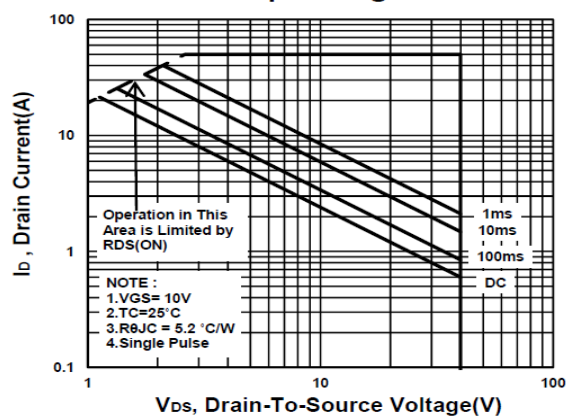
Gate charge Characteristics



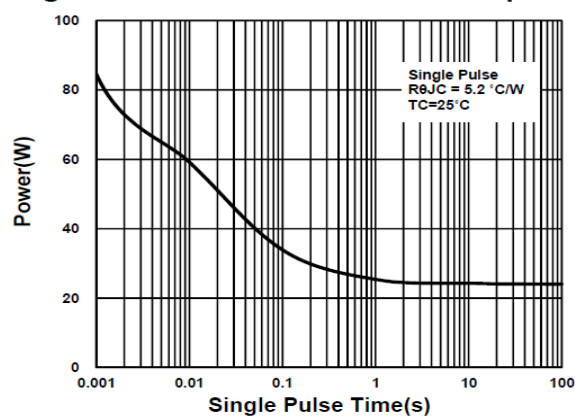
Source-Drain Diode Forward Voltage



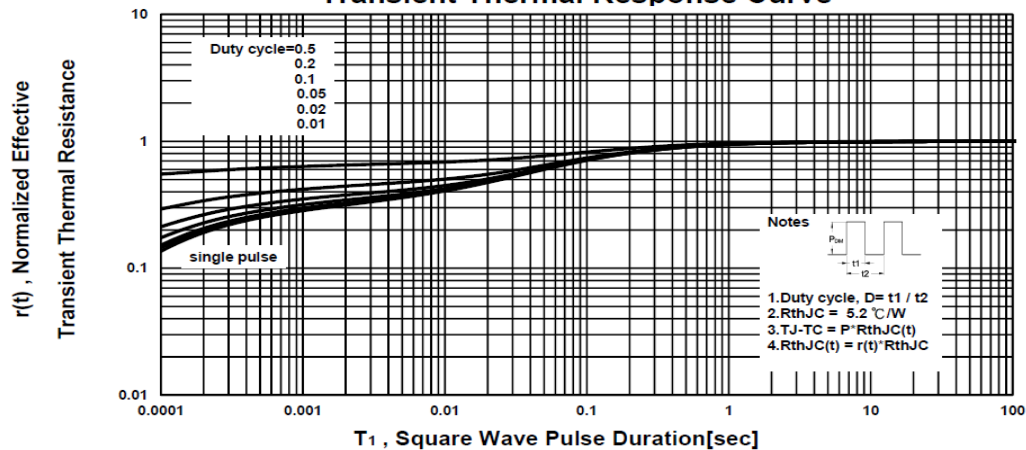
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



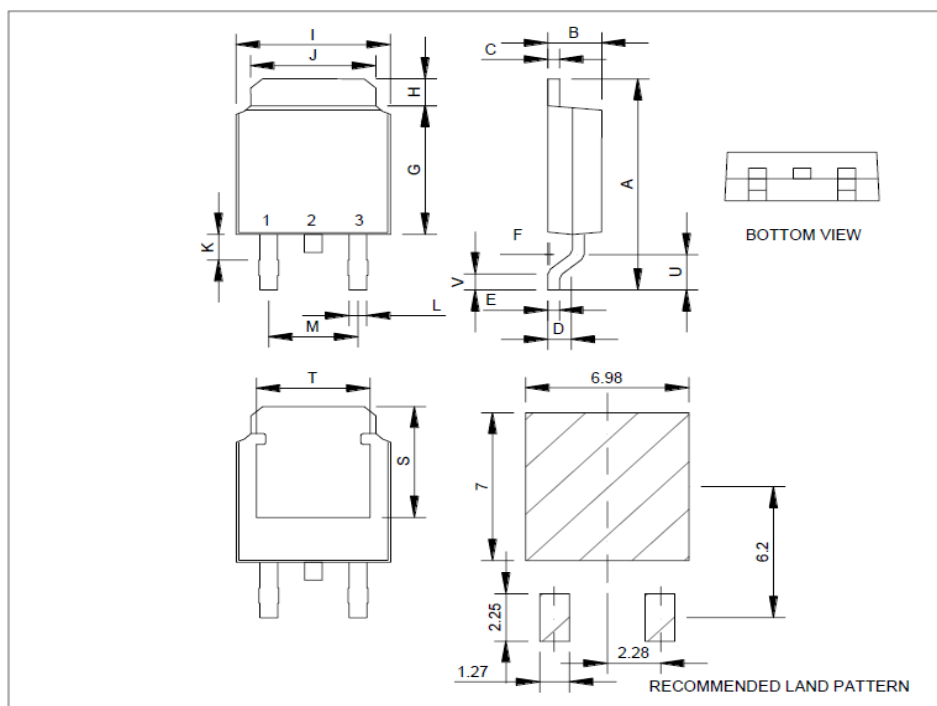
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N-Channel Enhancement Mode MOSFET

Package Dimension

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	10	10.41	J	4.8		5.64
B	2.1	2.2	2.4	K	0.15		1.1
C	0.4	0.5	0.61	L	0.4	0.76	0.89
D	0.82	1.2	1.5	M	4.2	4.58	5
E	0.4	0.5	0.61	S	4.9	5.1	5.3
F	0		0.2	T	4.6	4.75	5.44
G	5.3	6.1	6.3	U	1.4		1.78
H	0.9		1.7	V	0.55	1.25	1.7
I	6.3	6.5	6.8				

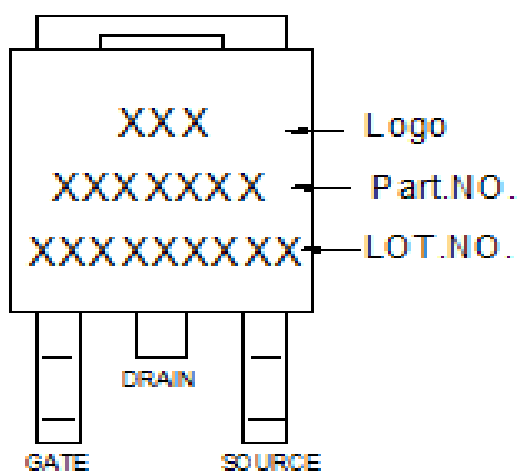


*因为各家封装厂模具不同而外观略有所差异，不影响电性及Layout。

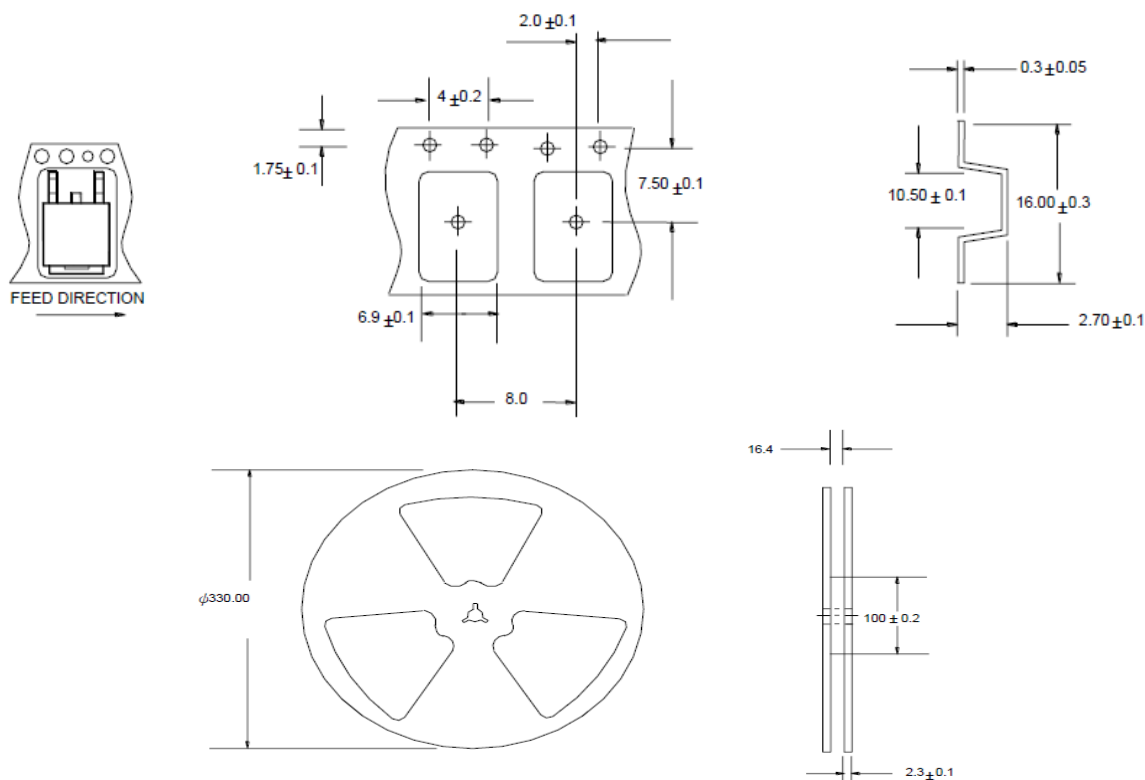
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N-Channel Enhancement Mode MOSFET

A. Marking Information



B. Tape&Reel Information:2500pcs/Reel

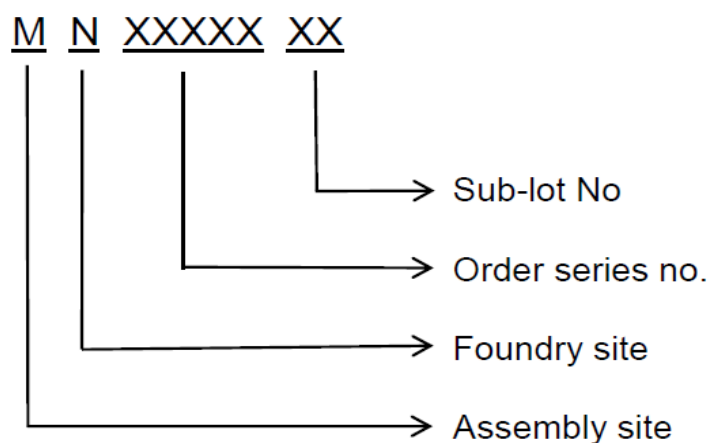


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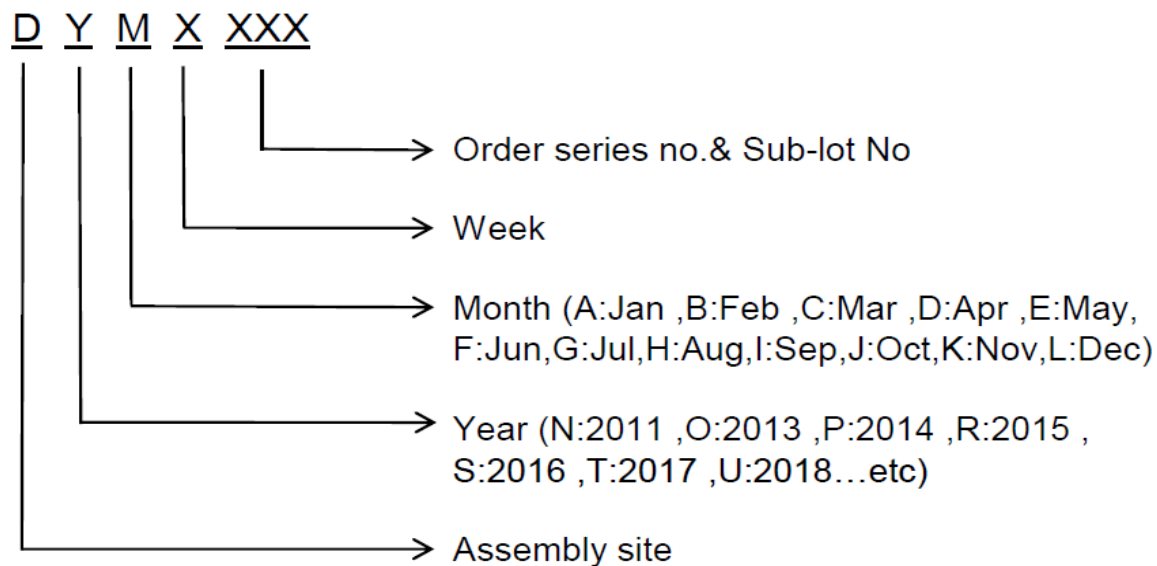
N-Channel Enhancement Mode MOSFET

C. Lot No.&Date Code rule

1.Lot No.



2.Date Code



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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	U-NIKC	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	RoHS label	 long axis: 12 mm minor axis: 6 mm bottom color: White Font color: Black Font style: Arial
11	Halogen Free label	 Diameter: 10 mm bottom color: Green Font color: Black Font style: Arial
12	Scan information	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