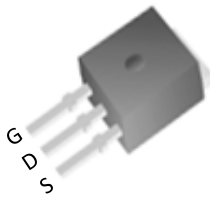


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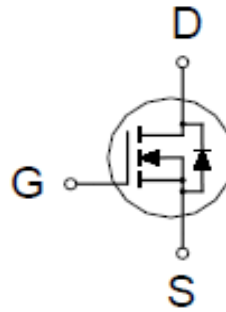
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
650V	2.6Ω @ $V_{GS} = 10V$	4A



TO-251(S)



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	650	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current ²	$T_C = 25\text{ °C}$	I_D	4	A
	$T_C = 100\text{ °C}$		2.5	
Pulsed Drain Current ^{1, 2}		I_{DM}	15	
Avalanche Current ³		I_{AS}	2	
Avalanche Energy ³		E_{AS}	20	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	54	W
	$T_C = 100\text{ °C}$		21	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.3	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Limited only by maximum temperature allowed.

³ $V_{DD} = 50V$, $L = 10mH$, starting $T_j = 25\text{ °C}$.

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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	650			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.5	3.3	4.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±30V			±100	nA
Gate Voltage Drain Current	I _{DSS}	V _{DS} = 650V, V _{GS} = 0V, T _C = 25 °C			1	μA
		V _{DS} = 520V, V _{GS} = 0V, T _C = 100°C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 2A		2.1	2.6	Ω
Forward Transconductance ¹	g _{fs}	V _{DS} = 15V, I _D = 2A		2.5		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz		512		pF
Output Capacitance	C _{oss}			52		
Reverse Transfer Capacitance	C _{rss}			12		
Total Gate Charge ²	Q _g	V _{DD} = 520V, I _D = 4A, V _{GS} = 10V		13		nC
Gate-Source Charge ²	Q _{gs}			3.8		
Gate-Drain Charge ²	Q _{gd}			4.3		
Turn-On Delay Time ²	t _{d(on)}	V _{GS} = 0V, V _{DD} = 350V, I _D = 4A, R _G = 25Ω		27		nS
Rise Time ²	t _r			59		
Turn-Off Delay Time ²	t _{d(off)}			90		
Fall Time ²	t _f			74		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current ³	I _S				4	A
Forward Voltage ¹	V _{SD}	I _F = 4A, V _{GS} = 0V			1	V
Reverse Recovery Time	t _{rr}	I _F = 4A, di _F /dt = 100A / μS		374		nS
Reverse Recovery Charge	Q _{rr}				2.1	

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

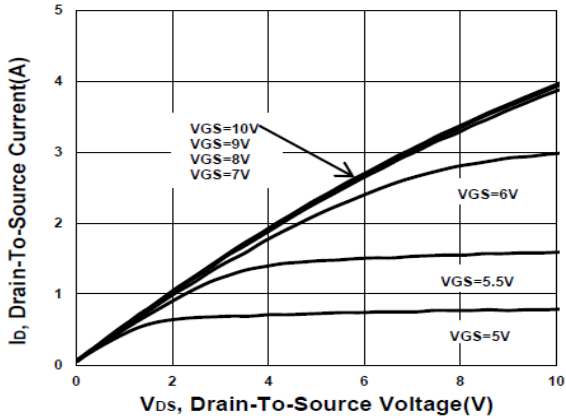
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

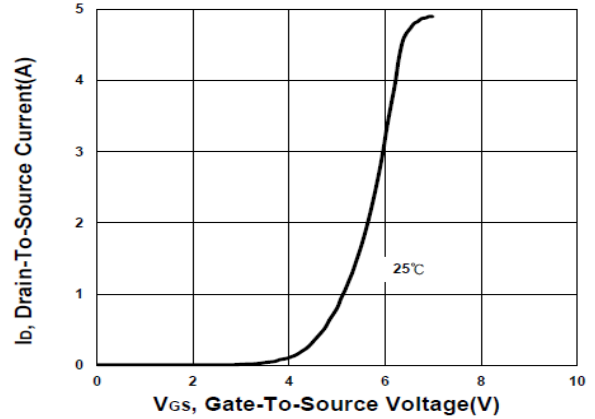
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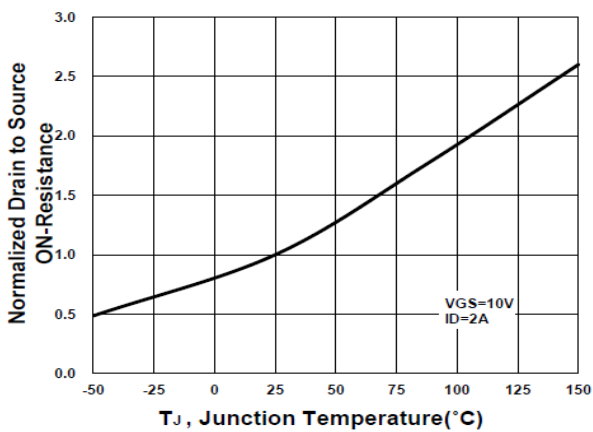
Output Characteristics



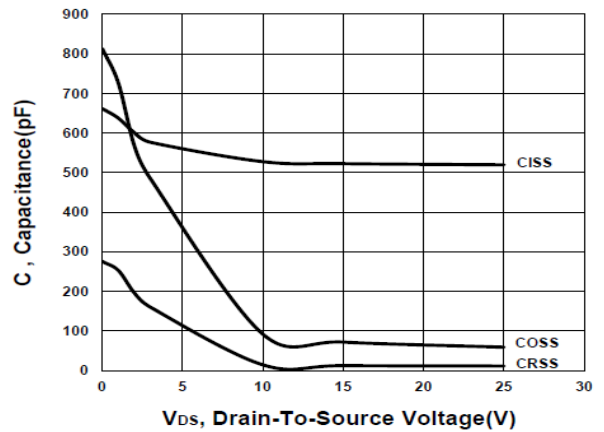
Transfer Characteristics



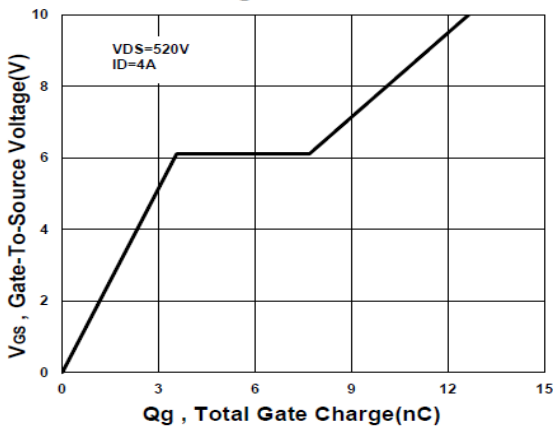
On-Resistance VS Temperature



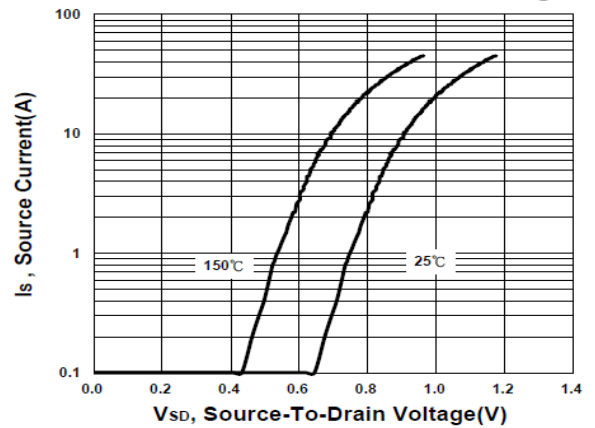
Capacitance Characteristic



Gate charge Characteristics



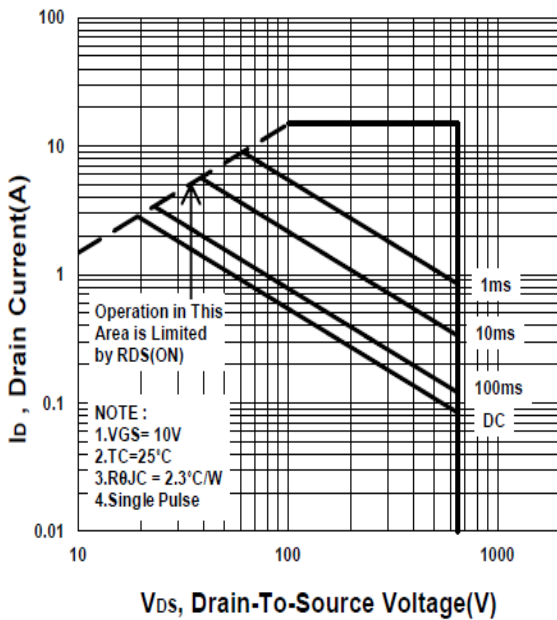
Source-Drain Diode Forward Voltage



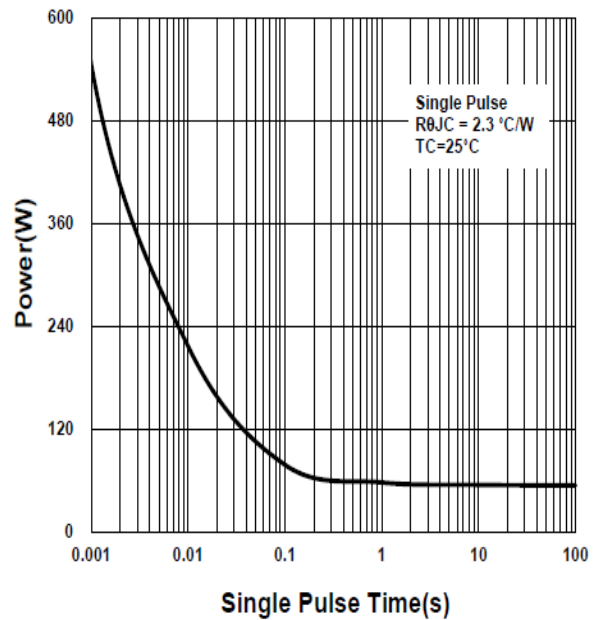
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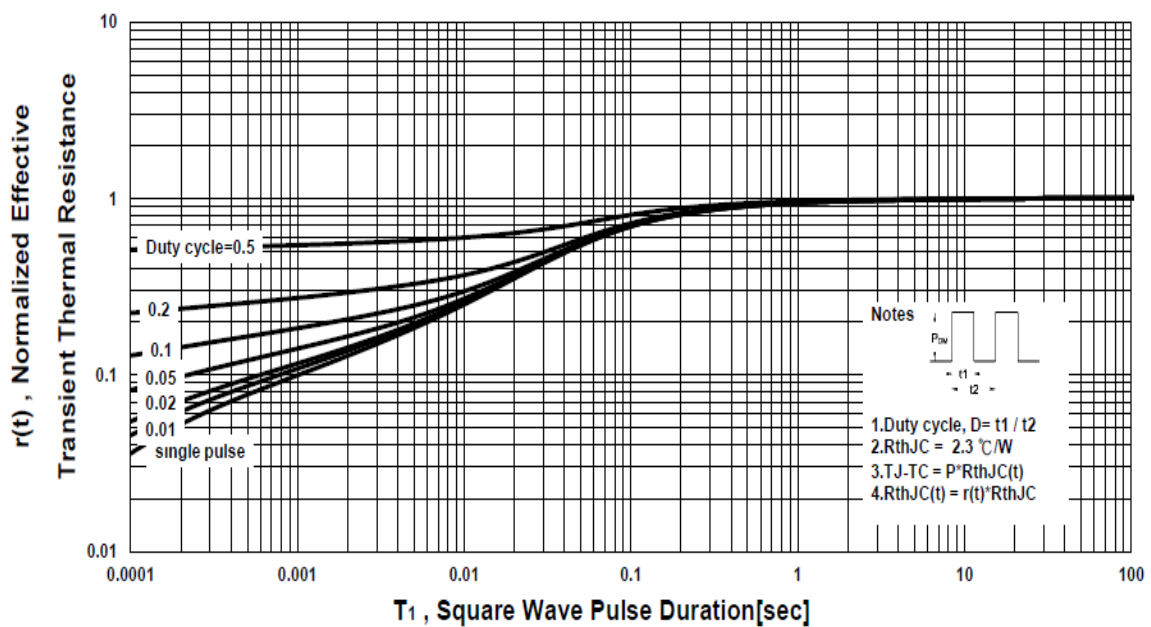
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



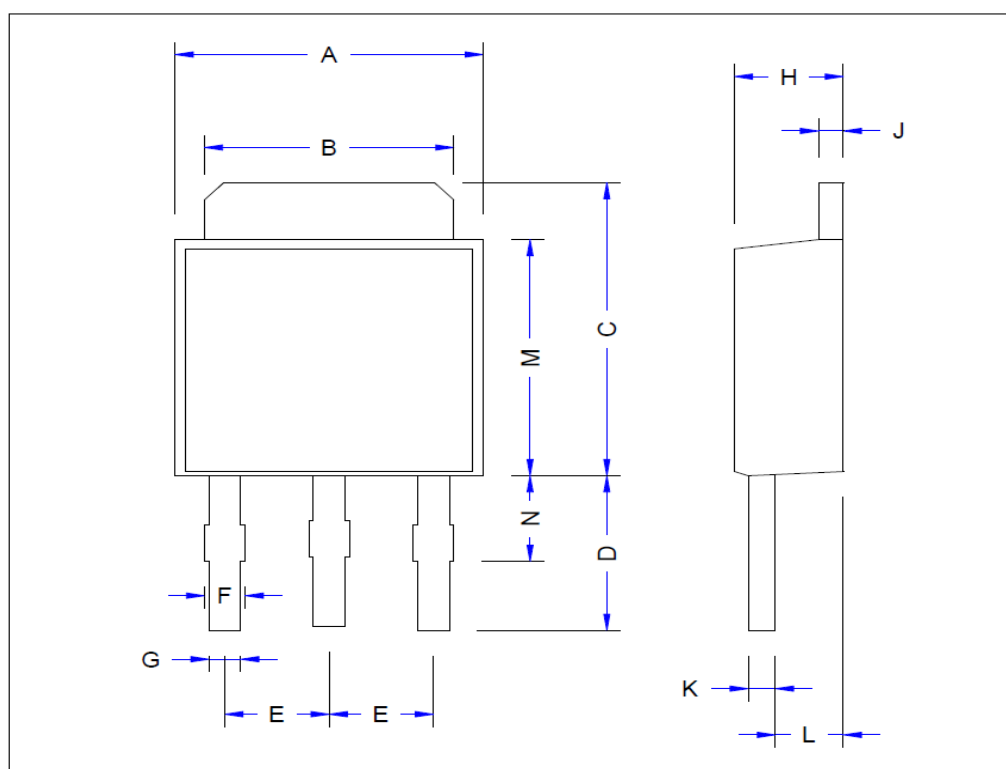
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Package Dimension

TO-251 (IS) MECHANICAL DATA

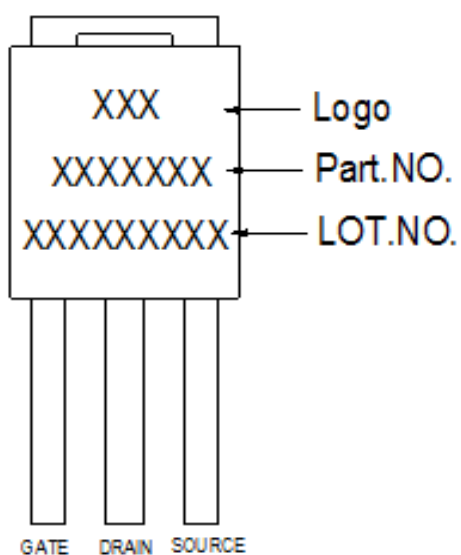
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	6.3	6.6	6.8	H	2.1	2.3	2.5
B	4.8	5.3	5.5	J	0.4	0.5	0.6
C	6.7		7.57	K	0.35	0.5	0.65
D	3	3.5	4.5	L	0.9		1.5
E		2.3		M	5.3		6.22
F	0.6	0.9	1.1	N	1.4	1.6	2.1
G	0.4		0.89				



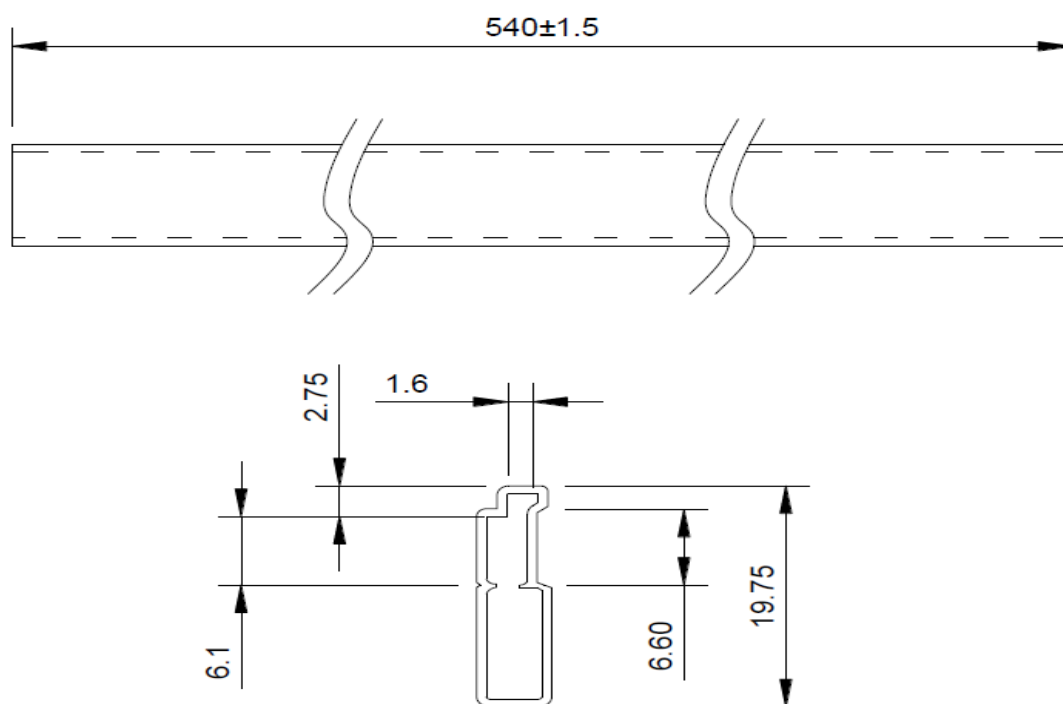
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A. Marking Information



B. Tape&Reel Information:75pcs/Tube

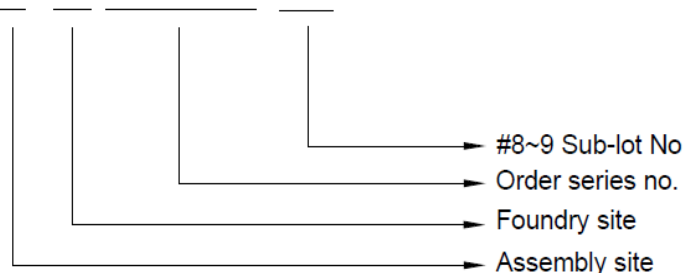


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C. Lot.No. & Date Code rule

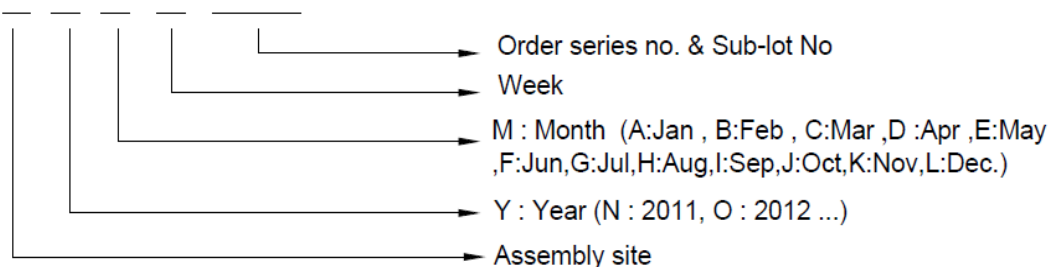
1.LOT.NO.

M N 15M21 03



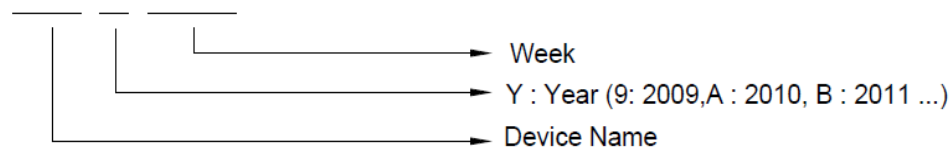
2.Date Code

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