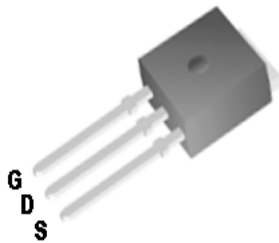


# P0165EI

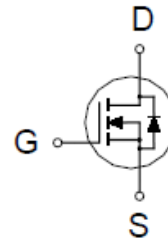
## N-Channel Enhancement Mode MOSFET

### PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
650V	10.6Ω @ $V_{GS} = 10V$	1A



TO-251



### 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	
Continuous Drain Current <sup>2</sup>	$T_C = 25\text{ °C}$	$I_D$	1	A
	$T_C = 100\text{ °C}$		0.7	
Pulsed Drain Current <sup>1,2</sup>		$I_{DM}$	1.8	
Avalanche Current <sup>3</sup>		$I_{AS}$	0.5	
Avalanche Energy <sup>3</sup>		$E_{AS}$	1.25	mJ
Power Dissipation	$T_C = 25\text{ °C}$	$P_D$	37	W
	$T_C = 100\text{ °C}$		15	
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	$R_{\theta JC}$		3.4	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Limited only by maximum temperature allowed

<sup>3</sup> $V_{DD} = 50V$ ,  $L = 10mH$ , starting  $T_J = 25\text{ °C}$

# P0165EI

## N-Channel Enhancement Mode MOSFET

### ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	650			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2	3.1	4	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±30V			±100	nA
Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 650V, V <sub>GS</sub> = 0V, T <sub>C</sub> = 25 °C			1	μA
		V <sub>DS</sub> = 520V, V <sub>GS</sub> = 0V, T <sub>C</sub> = 100 °			10	
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 0.5A		8.5	10.6	Ω
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 0.5A		2		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1MHz		161		pF
Output Capacitance	C <sub>oss</sub>			33		
Reverse Transfer Capacitance	C <sub>rss</sub>			10		
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>DD</sub> = 520V, I <sub>D</sub> = 1A, V <sub>GS</sub> = 10V		3.4		nC
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			0.7		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			0.8		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>						
Continuous Current <sup>3</sup>	I <sub>S</sub>				1	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 1A, V <sub>GS</sub> = 0V			1	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 1A, dI <sub>F</sub> /dt = 100A / μS		253		nS
Reverse Recovery Charge	Q <sub>rr</sub>			0.64		uC

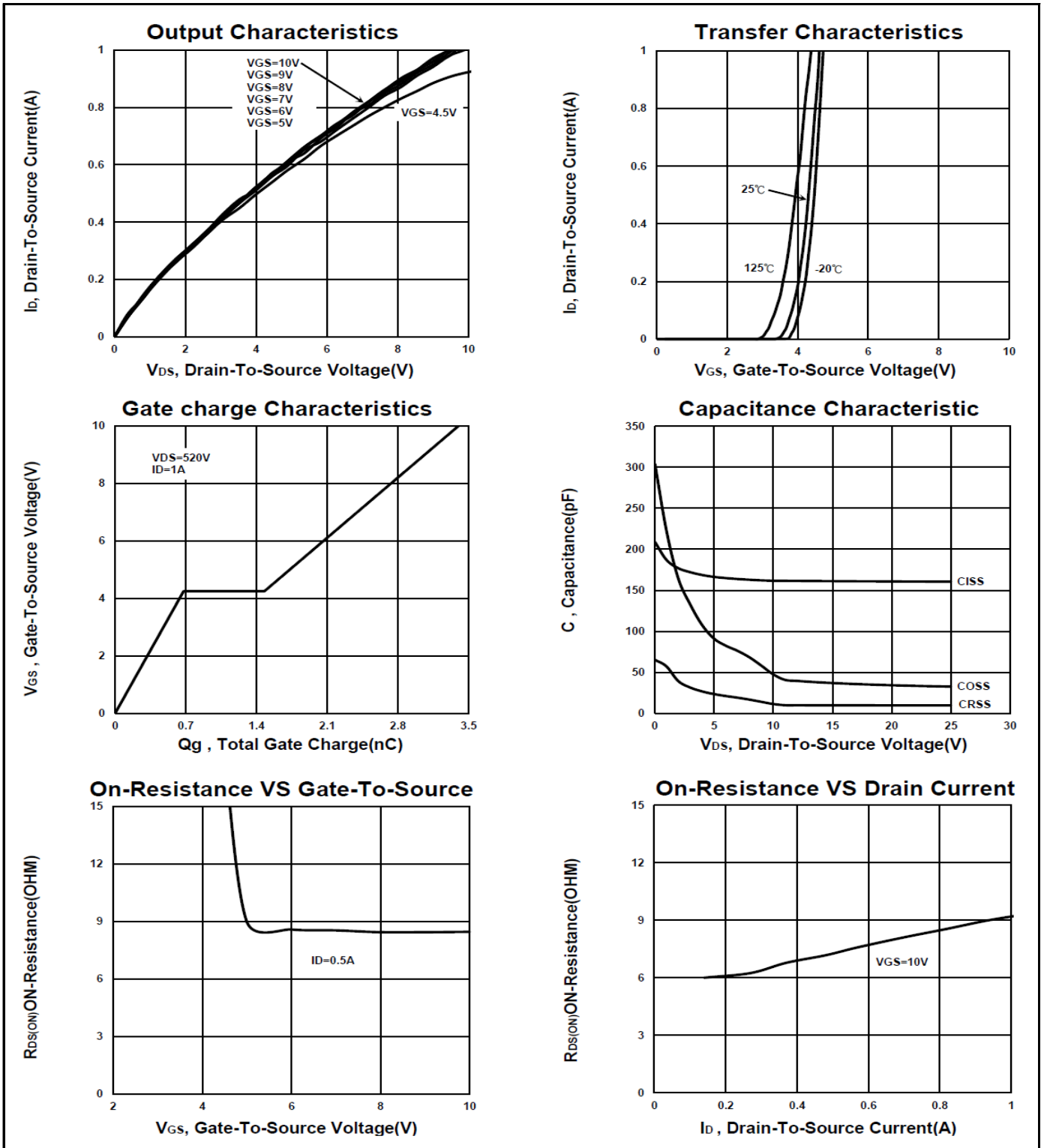
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

<sup>2</sup>Independent of operating temperature.

<sup>3</sup>Pulse width limited by maximum junction temperature.

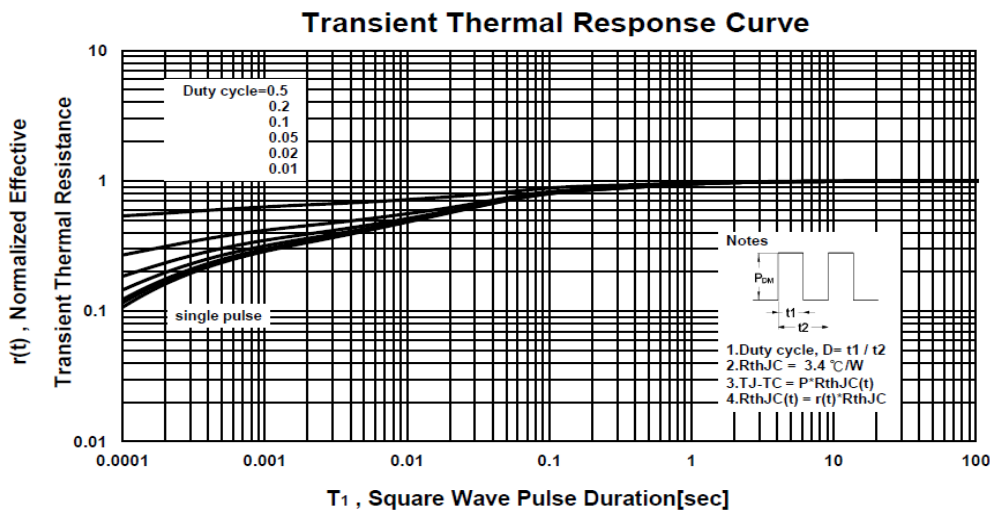
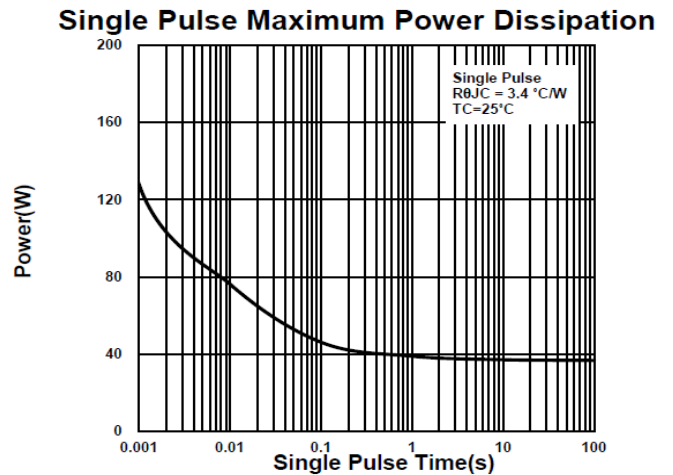
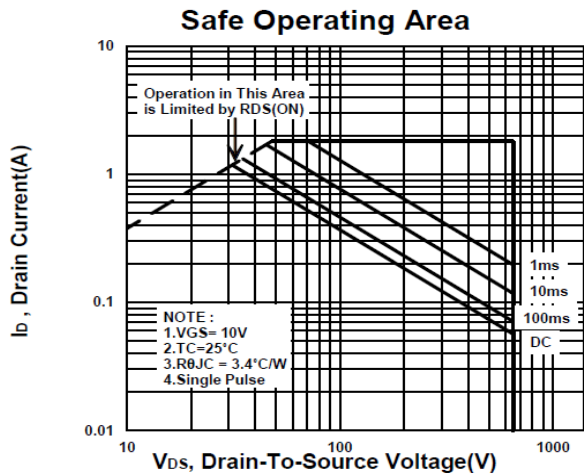
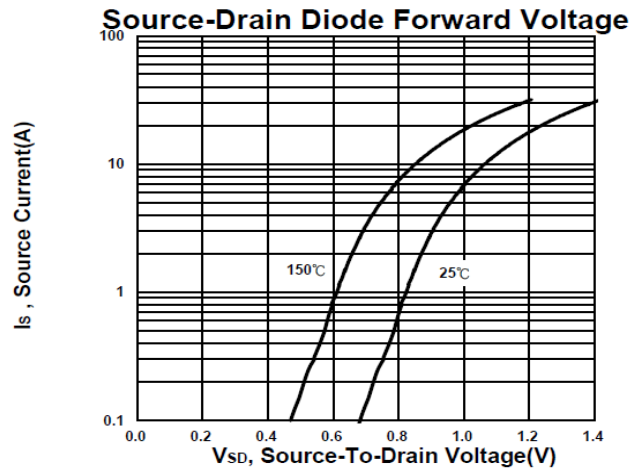
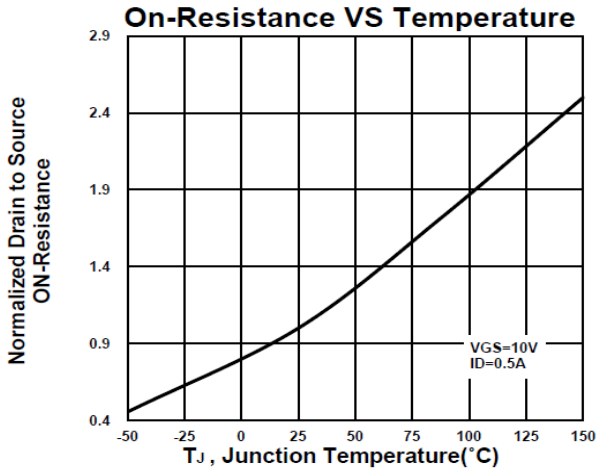
# P0165E1

## N-Channel Enhancement Mode MOSFET



# P0165EI

## N-Channel Enhancement Mode MOSFET



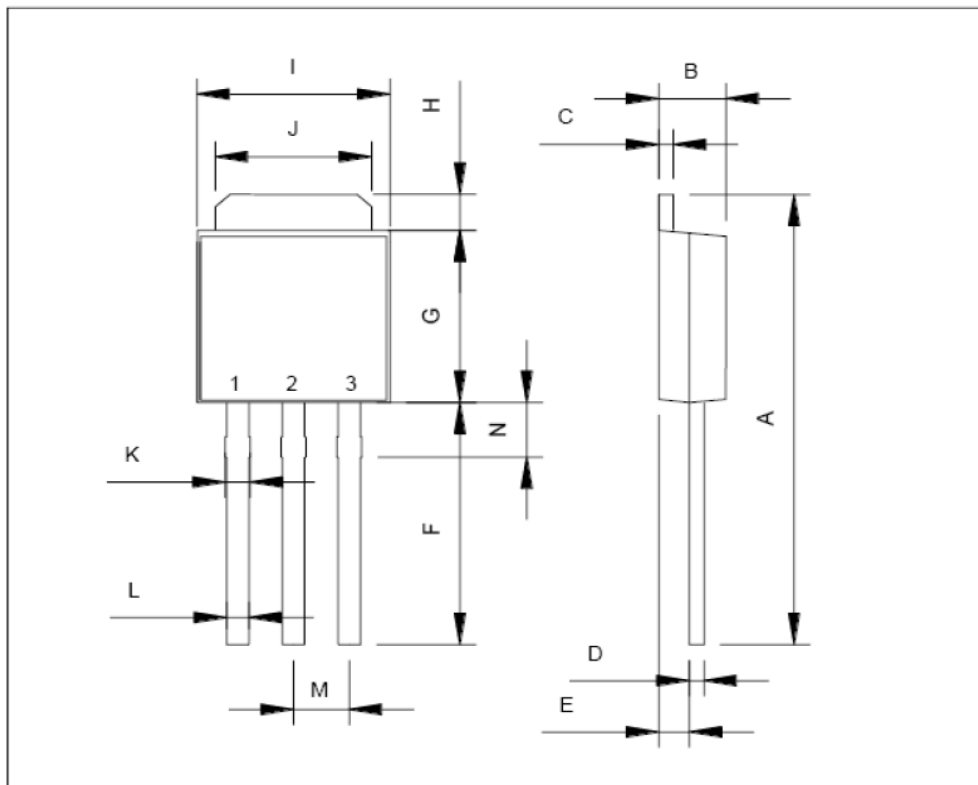
# P0165EI

## N-Channel Enhancement Mode MOSFET

### Package Dimension

### TO-251 MECHANICAL DATA

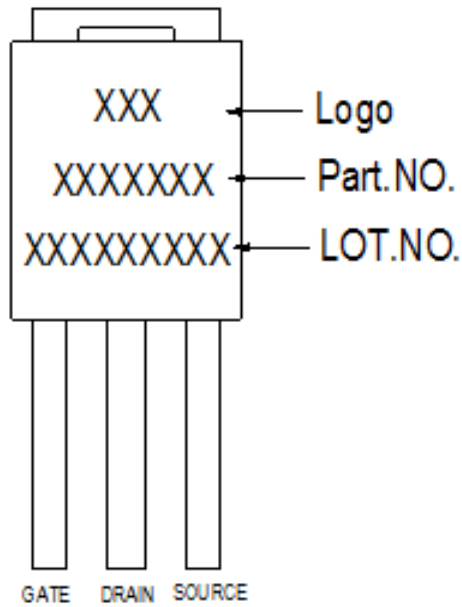
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	14	15	17.14	H	0.89		1.7
B	2.1	2.3	2.5	I	6.3		6.8
C	0.4	0.5	0.6	J	4.8		5.5
D	0.35	0.5	0.65	K	0.5	0.84	1.14
E	0.9	1.1	1.5	L	0.4	0.76	0.912
F	7		9.65	M		2.3	
G	5.3		6.22	N	1.4	2.16	2.23



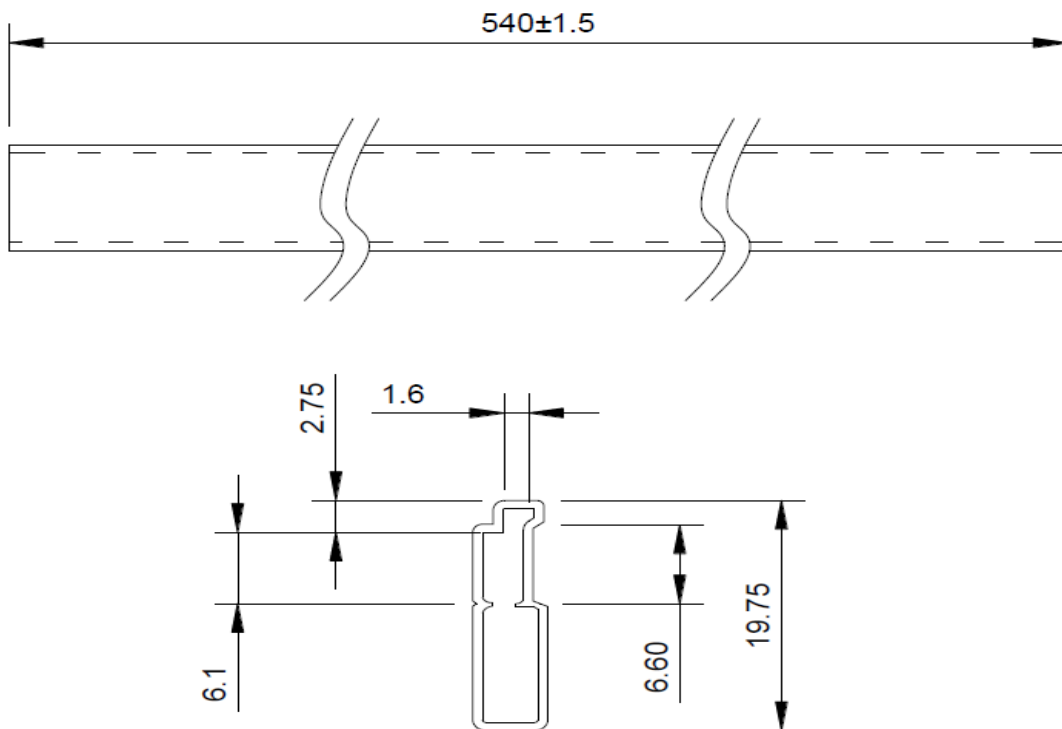
# P0165EI

## N-Channel Enhancement Mode MOSFET

### A. Marking Information



### B. Tape & Reel Information: 75pcs/Tube



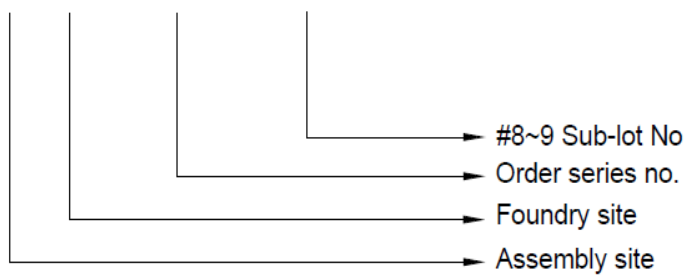
# P0165EI

## N-Channel Enhancement Mode MOSFET

### C. Lot.No. & Date Code rule

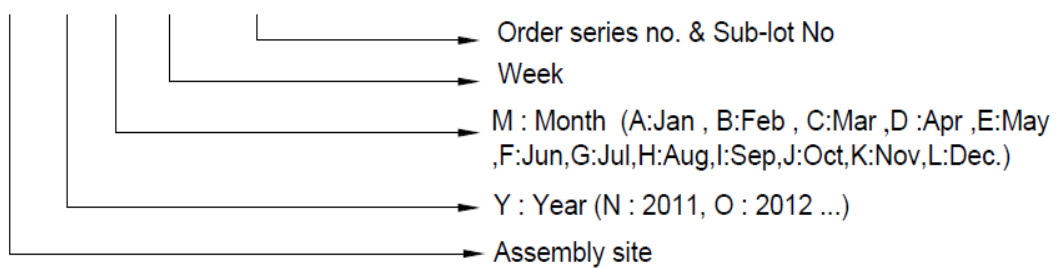
#### 1.LOT.NO.

M N 15M21 03



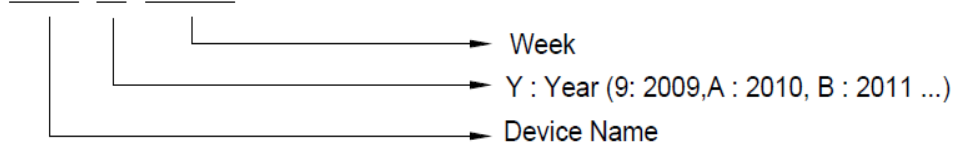
#### 2.Date Code

D Y M X XXX



#### 3.Date Code (for Small package)

XX Y WW





# P0165EI

## 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