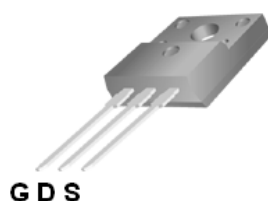


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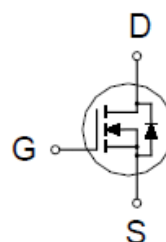
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
700V	$0.85\Omega @ V_{GS} = 10V$	10A



TO-220F
TO-220FS



100% UIS tested

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	700	V
Gate-Source Voltage		V_{GS}	± 30	
Continuous Drain Current ²	$T_C = 25\text{ }^\circ\text{C}$	I_D	10	A
	$T_C = 100\text{ }^\circ\text{C}$		6	
Pulsed Drain Current ^{1, 2}		I_{DM}	30	
Avalanche Current ³		I_{AS}	6.8	
Avalanche Energy ³		E_{AS}	230	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	46	W
	$T_C = 100\text{ }^\circ\text{C}$		18	
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-Case	$R_{\theta JC}$		2.7	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Limited only by maximum temperature allowed.

³ $V_{DS} = 50V$, $L = 10mH$, starting $T_J = 25^\circ\text{C}$

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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	700			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.5	3	4.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±30V			±100	nA
Gate Voltage Drain Current	I _{DSS}	V _{DS} = 700V, V _{GS} = 0V, T _C = 25 °C			1	μA
		V _{DS} = 560V, V _{GS} = 0V , T _C = 100 °C			100	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 5A		0.7	0.85	Ω
Forward Transconductance ¹	g _{fs}	V _{DS} = 10V, I _D = 5A		5		S
DYNAMIC						
Input Capacitance	C _{iSS}	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz		2080		pF
Output Capacitance	C _{oss}			189		
Reverse Transfer Capacitance	C _{rSS}			22		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.6		Ω
Total Gate Charge ²	Q _g	V _{DD} = 560V, V _{GS} = 10V, I _D = 10A		57		nC
Gate-Source Charge ²	Q _{gs}			12		
Gate-Drain Charge ²	Q _{gd}			24		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = 350V, I _D = 10A, R _G = 25Ω		20		nS
Rise Time ²	t _r			19		
Turn-Off Delay Time ²	t _{d(off)}			48		
Fall Time ²	t _f			19		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)						
Continuous Current ³	I _S				10	A
Forward Voltage ¹	V _{SD}	I _F = 10A, V _{GS} = 0V			1.4	V
Reverse Recovery Time	t _{rr}	I _F = 10A, dI _F /dt = 100A / μS		484		nS
Reverse Recovery Charge	Q _{rr}			6.9		μC

¹Pulse test : Pulse Width ≤ 380 μsec, Duty Cycle ≤ 2%.

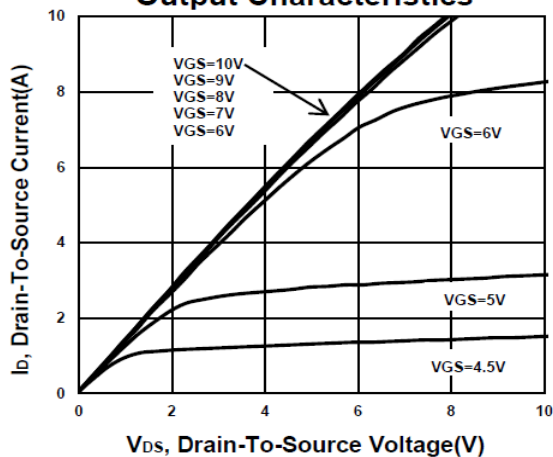
²Independent of operating temperature.

³ Pulse width limited by maximum junction temperature.

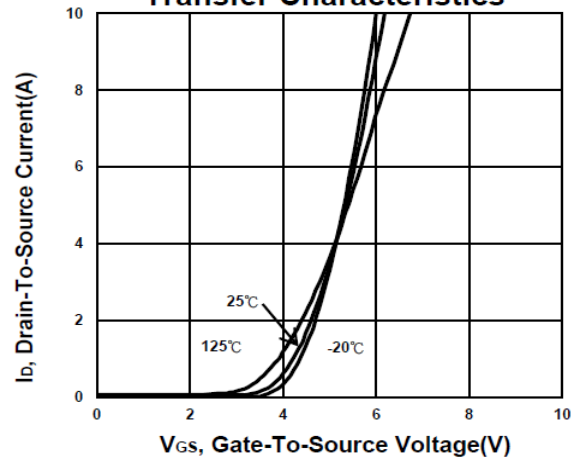
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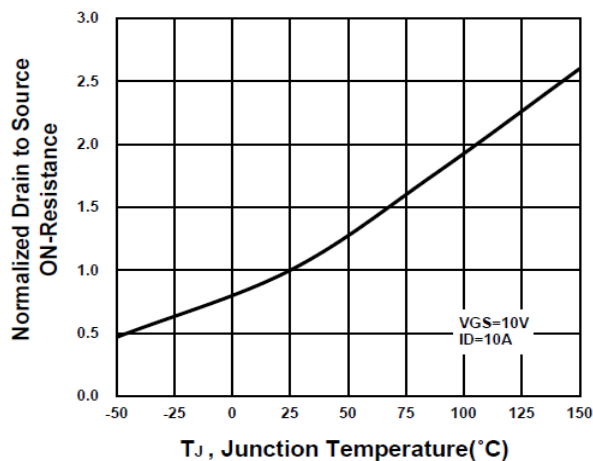
Output Characteristics



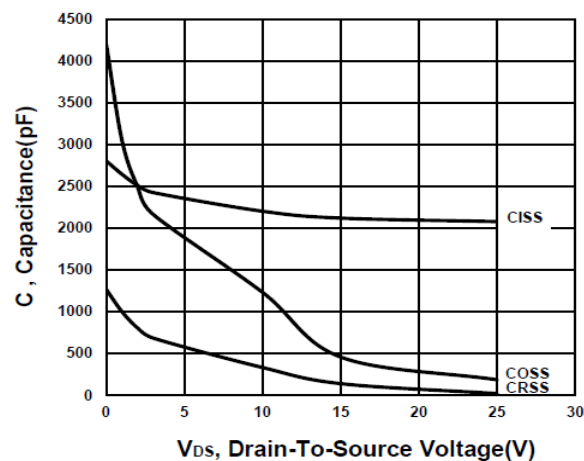
Transfer Characteristics



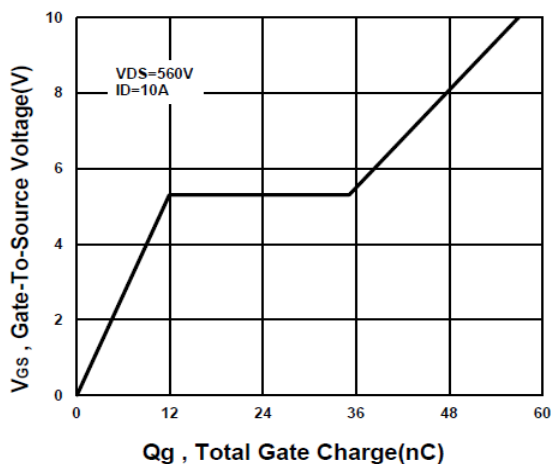
On-Resistance VS Temperature



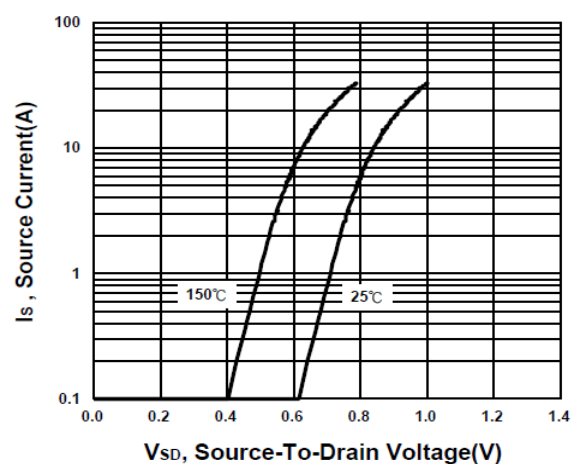
Capacitance Characteristic



Gate charge Characteristics



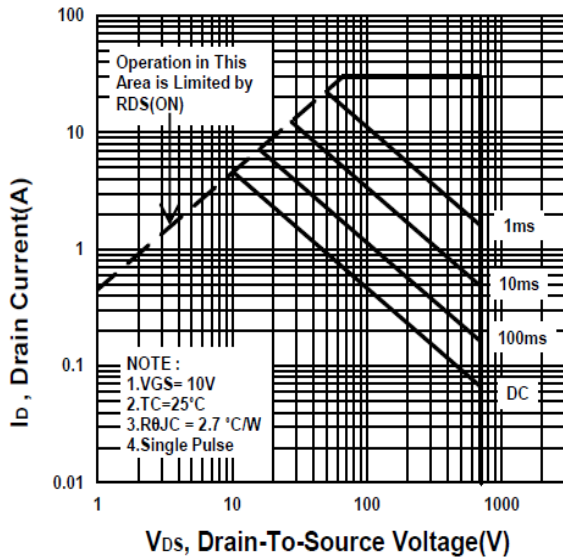
Source-Drain Diode Forward Voltage



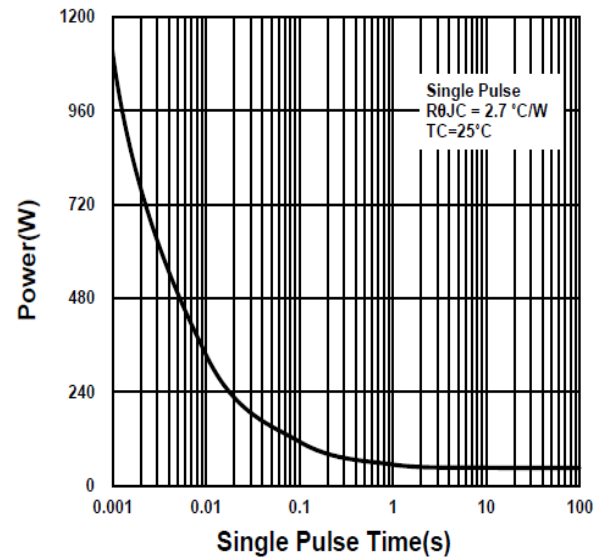
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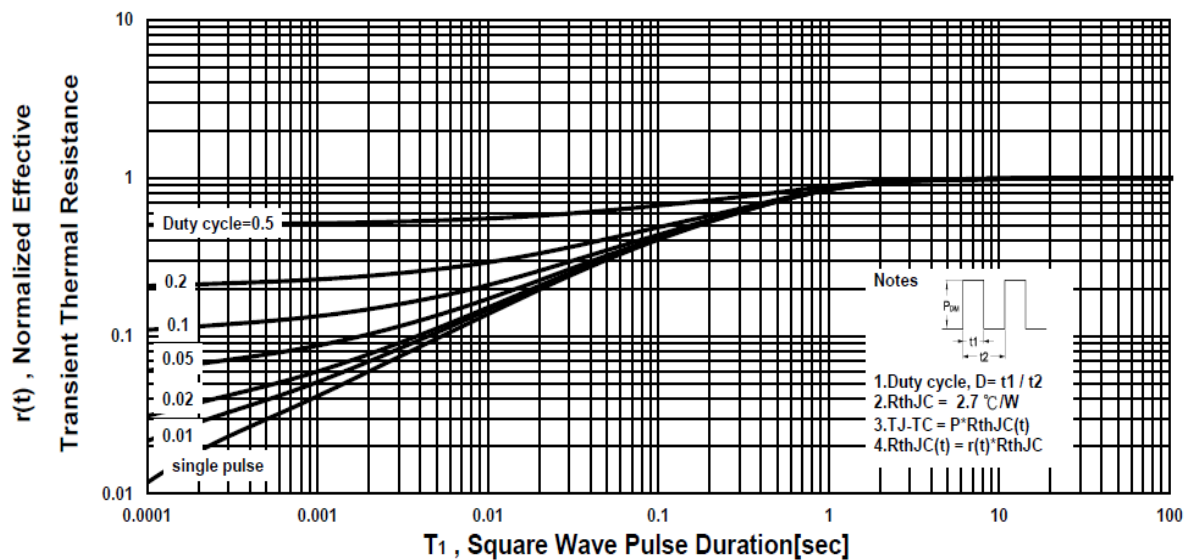
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



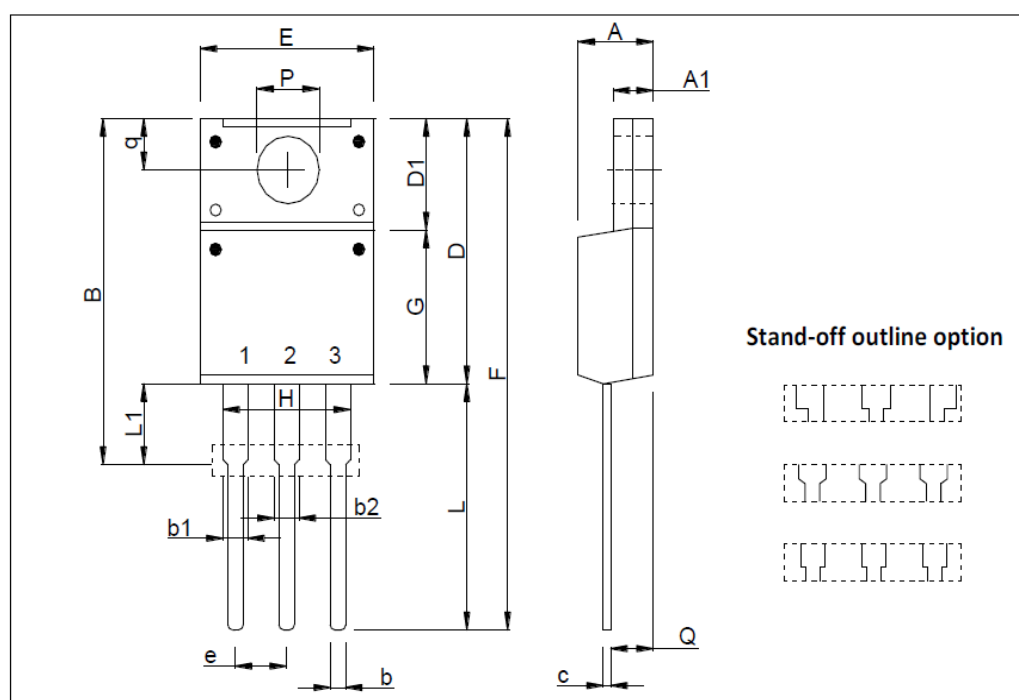
P1070ATF / P1070ATFS

N-Channel Enhancement Mode MOSFET

Package Dimension

TO-220F (3-Lead) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.4		4.93	e	2.34		2.74
A1	2.34		3.1	F	27.2		30.6
B	18.8		20	G	7.7		9.39
b	0.65		1	H	6.18		6.82
b1	0.93		1.6	L	12.7		14.2
b2	0.95		1.6	L1	2.88		3.7
c	0.4		1	P	2.98		3.7
D	13.5		16.4	Q	2.3		2.96
D1	6.48		6.95	q	3.1		3.8
E	9.8		10.4				



*因各家封装模具不同而外观略有所差异，不影响电性及Layout。

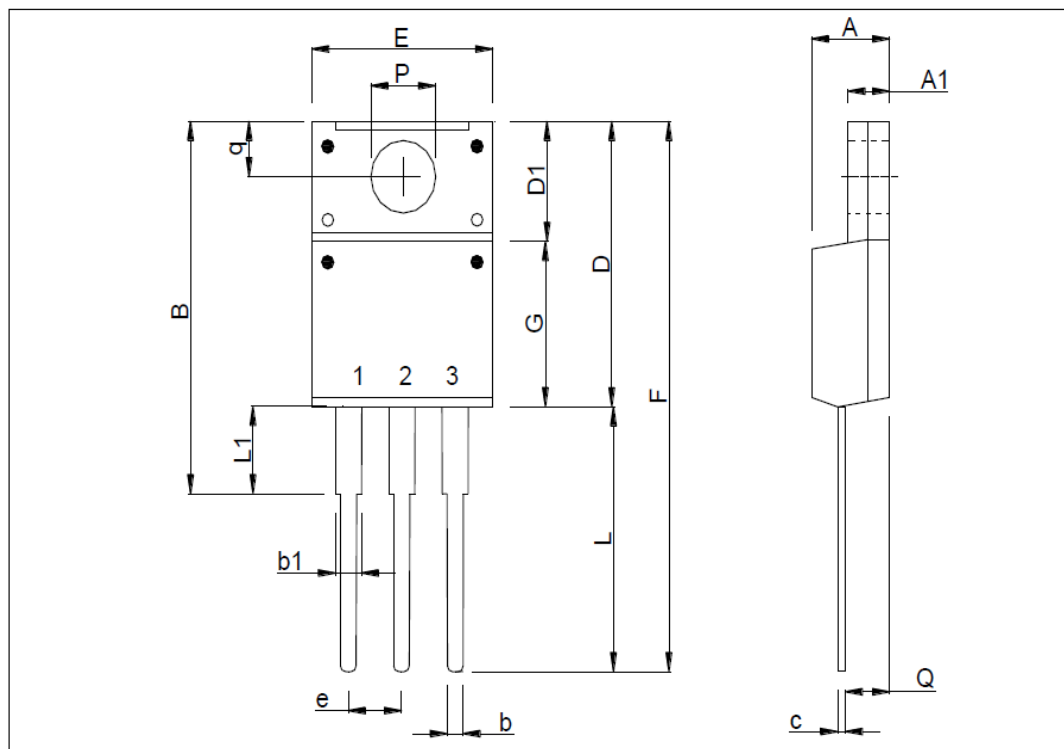
P1070ATF / P1070ATFS

N-Channel Enhancement Mode MOSFET

Package Dimension

TO-220FS (3-Lead) MECHANICAL DATA

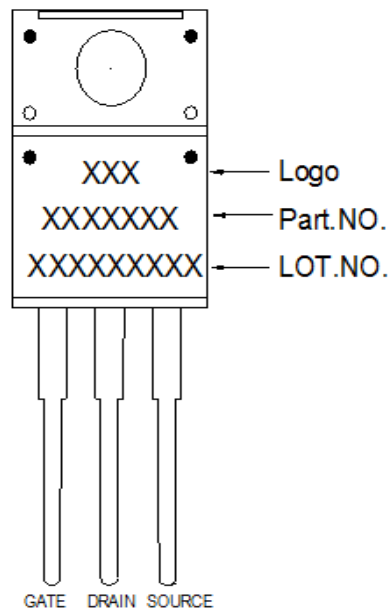
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.2	4.7	4.93	e	2.05	2.54	3.05
A1	2.34	2.745	3.15	F	28.00		30.3
B	16.82		20.3	G	8.2	8.87	9.57
b	0.5	0.775	1.05	L	12.37		14.3
b1	0.8	1.15	1.5	L1	1.4	2.3	2.5
c	0.4	0.7	1.0	P	2.98	3.24	3.5
D	14.80		16.3	Q	2.1	2.6	2.96
D1	5.5		7.5	q	2.7	3.25	3.8
E	9.7	10.16	10.36				



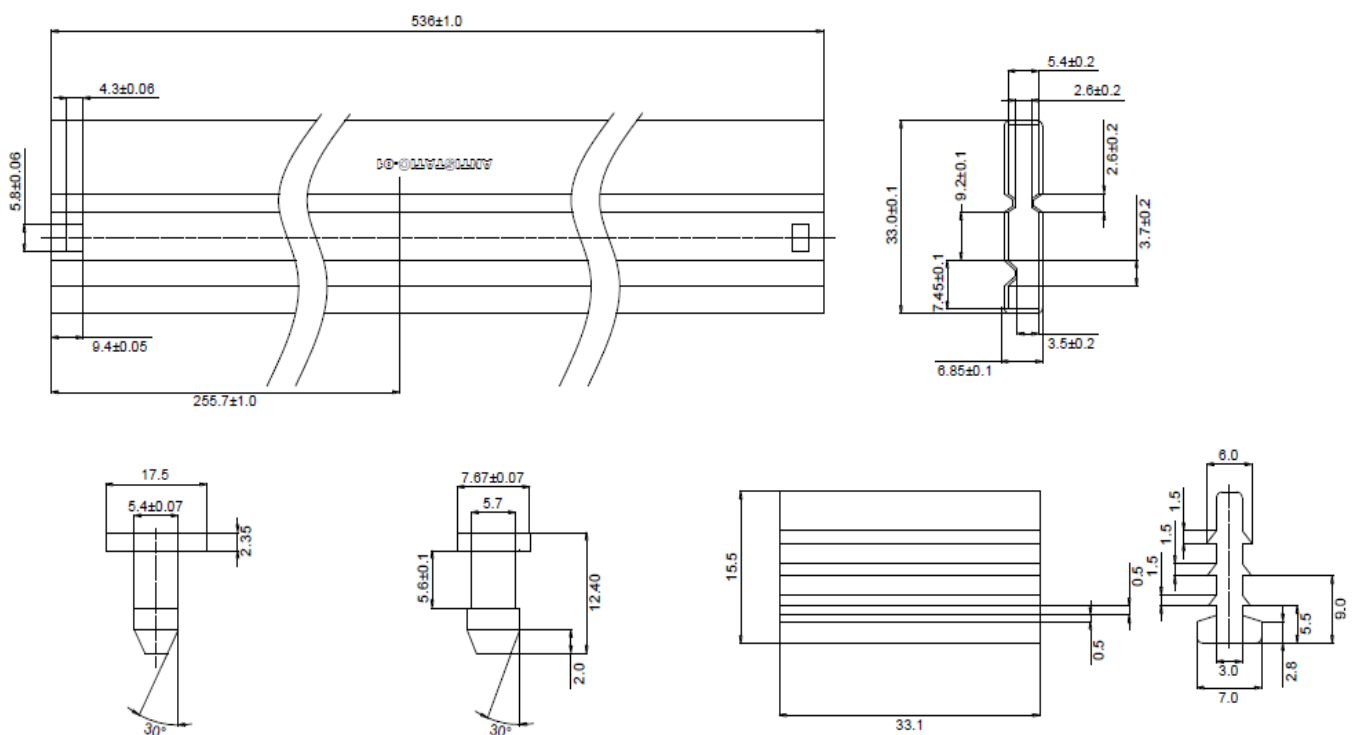
P1070ATF / P1070ATFS

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A. Marking Information



B. Tape&Reel Information:50pcs/Tube(2000pcs/Box)



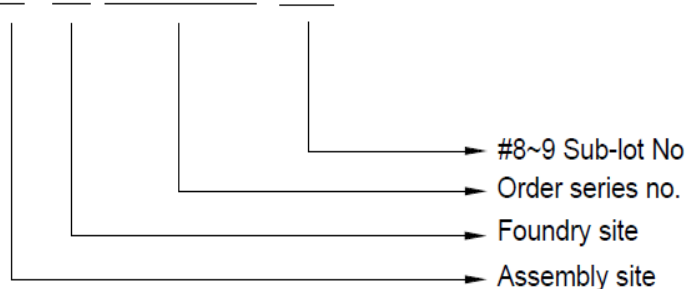
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C. Lot.No. & Date Code rule

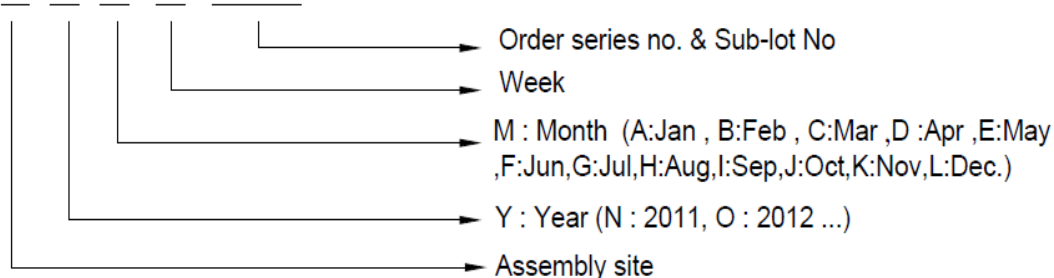
1.LOT.NO.

M N 15M21 03



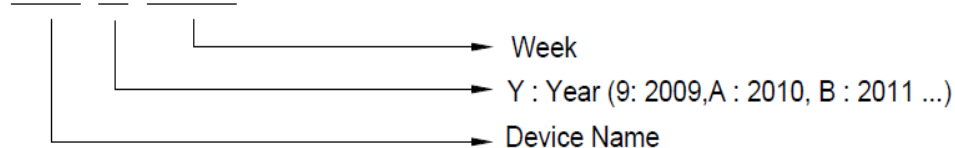
2.Date Code

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