

/ Descriptions

TO-220FL N MOS N-CHANNEL MOSFET in a TO-220FL Plastic Package.

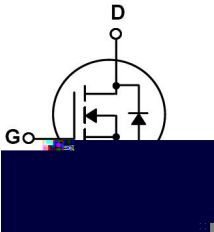
/ Features

Low gate charge, Low Crss , Fast switching, HF Product.

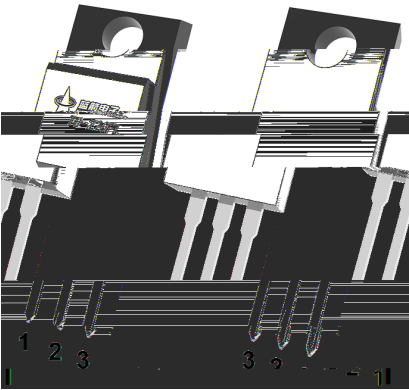
/ Applications

High efficiency switch mode power supplies, Electronic lamp ballasts based on half bridge, UPS.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	700	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	12	A
Drain Current	$I_D(T_c=100^\circ\text{C})$	10	A
Drain Current - Pulsed	I_{DM}	48	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	405	mJ
Avalanche Current	I_{AS}	9	A
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.27	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Power Dissipation	P_D	55	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	

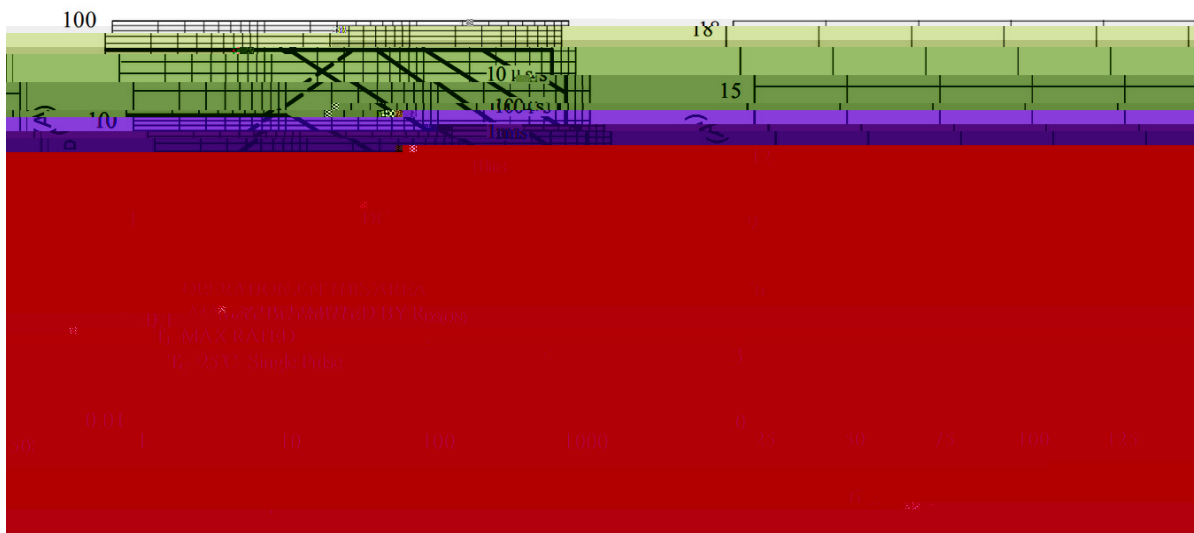
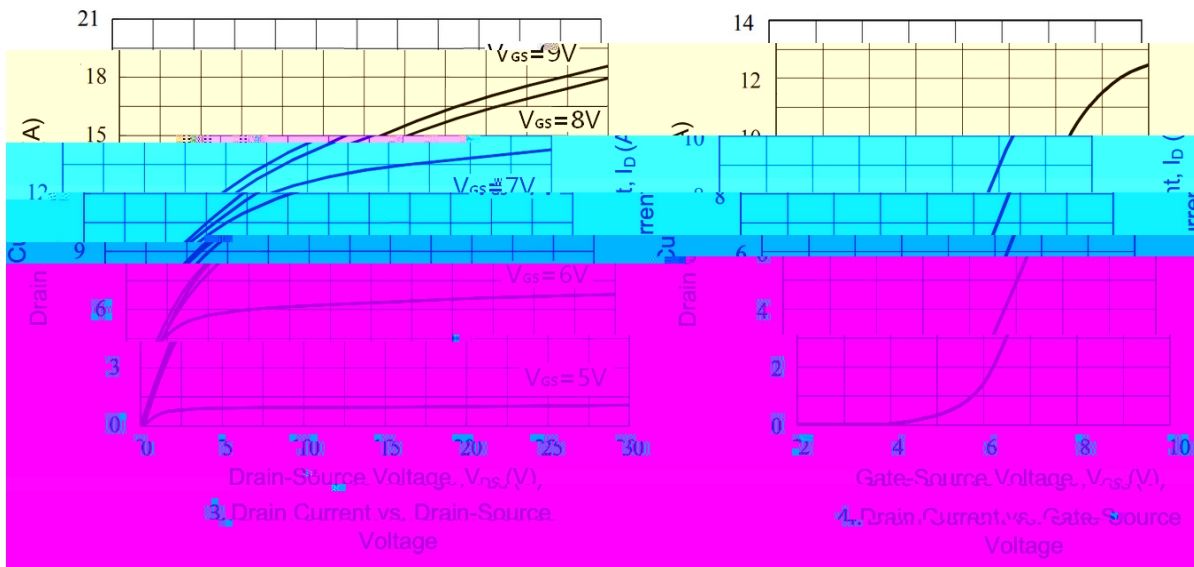
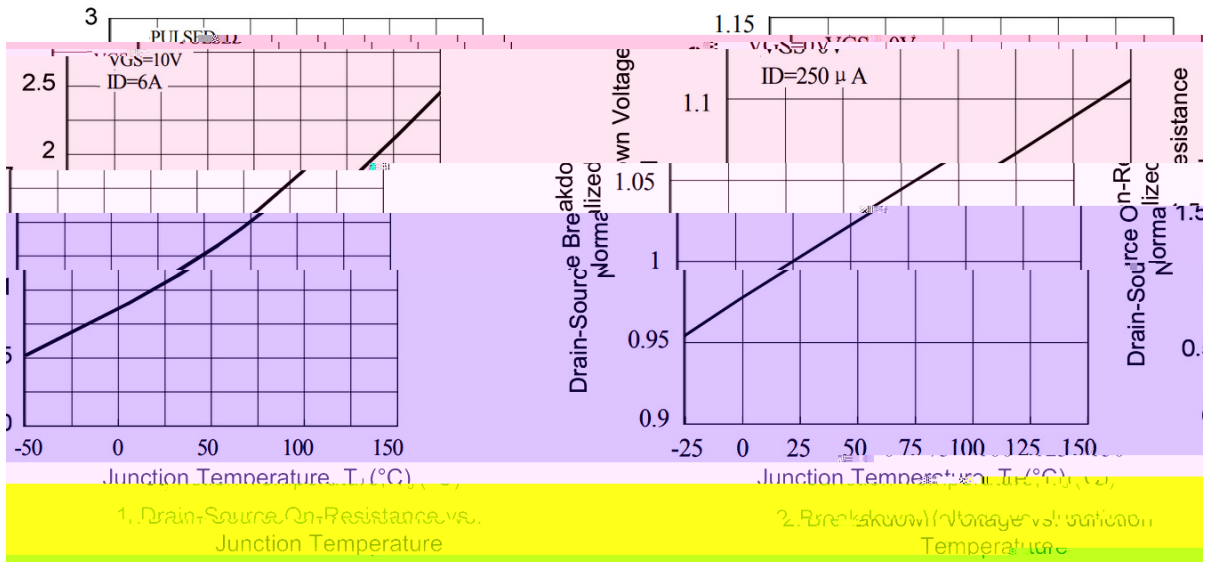
/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	700			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=700V$ $V_{GS}=0V$			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.0	3.4	4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=6A$		0.65	0.8	Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=12A$			1.4	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		2180		pF
Output Capacitance	C_{oss}			55		pF
Reverse Transfer Capacitance	C_{rss}			6		pF
Total Gate Charge	Q_G	$V_{DD}=350V$ $I_D=12A$ $V_{GS}=10V$		47		nC
Gate-Source Charge	Q_{GS}			10		nC
Gate-Drain Charge	Q_{GD}			18		nC

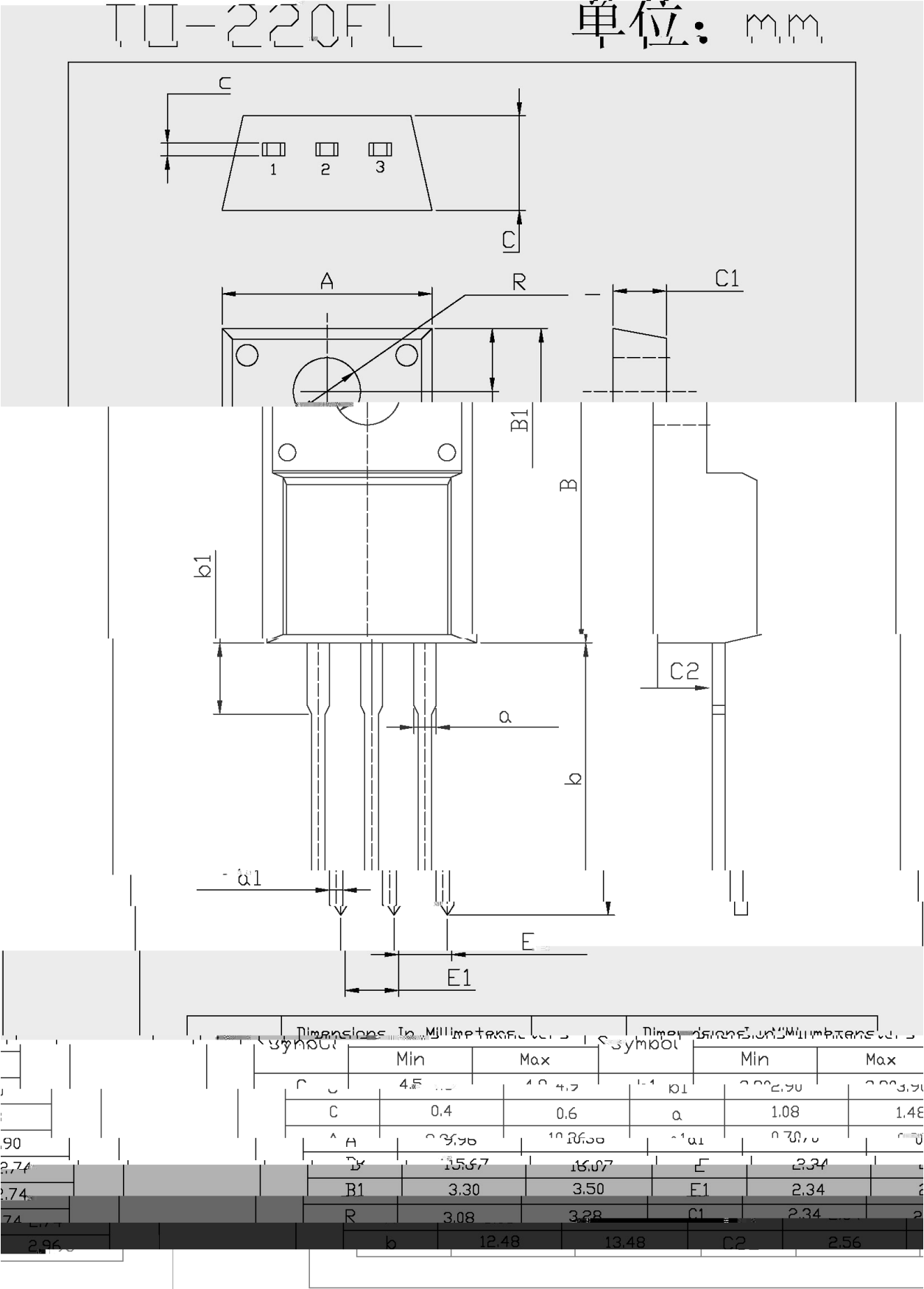
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	td(on)	V _{DD} =350V I _D =12A R _G =9.1Ω V _{GS} =10V		18		ns
Turn-On Rise Time	tr			33		
Turn-Off Delay Time	td(off)			58		
Turn-Off Fall Time	tf			44		
Maximum Continuous Drain-Source Diode Forward Current	I _S				12	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				48	A
Reverse Recovery Time	trr	V _{GS} = 0V I _S = 12A dI _F /dt = 100 A/μs		332		ns
Reverse Recovery Charge	Q _{rr}			2803		nC

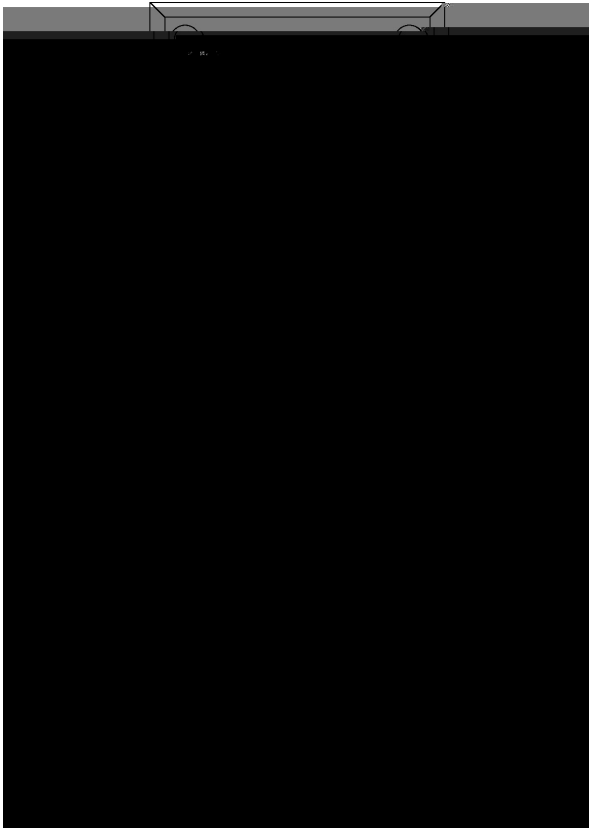
/ Electrical Characteristic Curve



/ Package Dimensions



/ Marking Instructions



BR
12N70

Note:
BR: Company Code
12N70: Product Type Code
****: Lot No. Code, code change with Lot No

() / Temperature Profile for Dip Soldering(Pb-Free)

Note:

- 1

25 150

60 90sec;

1.Preheating:25~150 , Time:60~90sec.
- 2

255±5

5±0.5sec;

2.Peak Temp.:255±5 , Duration:5~10sec.