描述 / Descriptions

TO-220FL 塑封封装 N 沟道 MOS 场效应管。N-CHANNEL MOSFET in a TO-220FL Plastic Package.

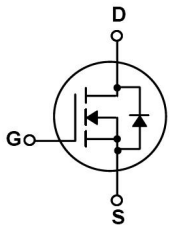
特征 / Features

低栅电荷,低反馈电容,开关速度快。
Low gate charge, Low Crss , Fast switching.

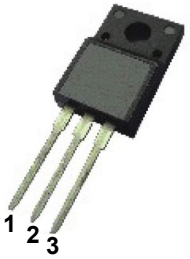
用途 / Applications

用于高频开关电源，电子镇流器，UPS 电源。
High efficiency switch mode power supplies, Electronic lamp ballasts based on half bridge, UPS .

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1：G　　PIN 2：D　　PIN 3：S

放大及印章代码 / h_{FE} Classifications & Marking

见印章说明。See Marking Instructions.

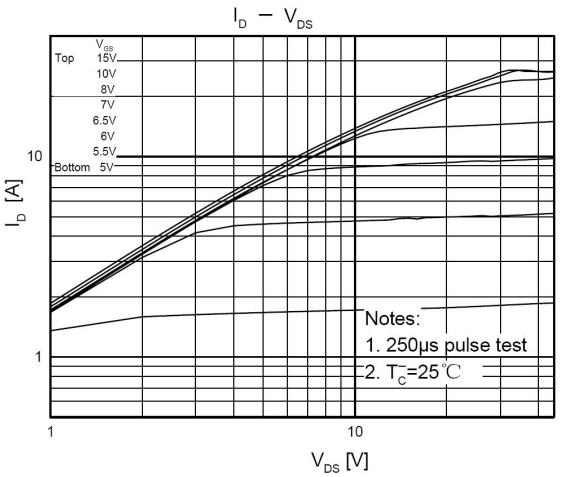
极限参数 / Absolute Maximum Ratings(Ta=25℃)

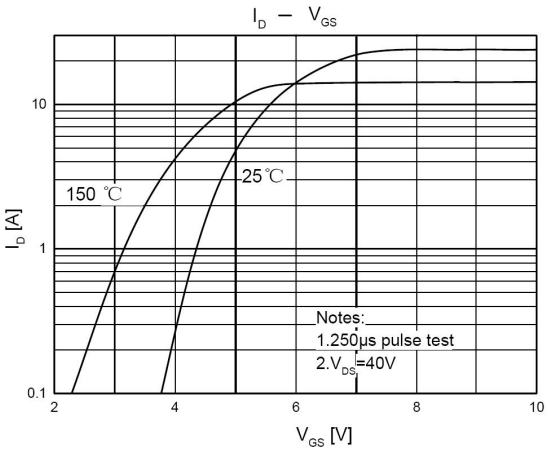
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V_{DSS}	650	V
Drain Current	I_D(Tc=25℃)	12	A
Drain Current	I_D(Tc=100℃)	7.6	A
Drain Current - Pulsed	I_{DM}	48	A
Gate-Source Voltage	V_{GSS}	±30	V
Single Pulsed Avalanche Energy	E_{AS}	880	mJ
Repetitive Avalanche Energy	E_{AR}	25	mJ
Avalanche Current	I_{AR}	12	A
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.45	℃/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Power Dissipation	P_D	51	W
Operating and Storage Temperature Range	T_J,T_{STG}	-55 to 150	℃

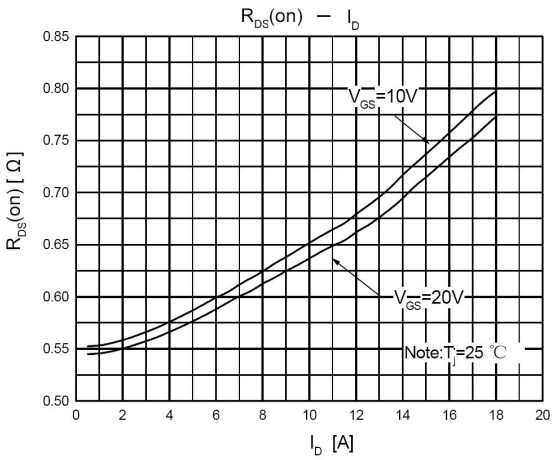
电性能参数 / Electrical Characteristics(Ta=25℃)

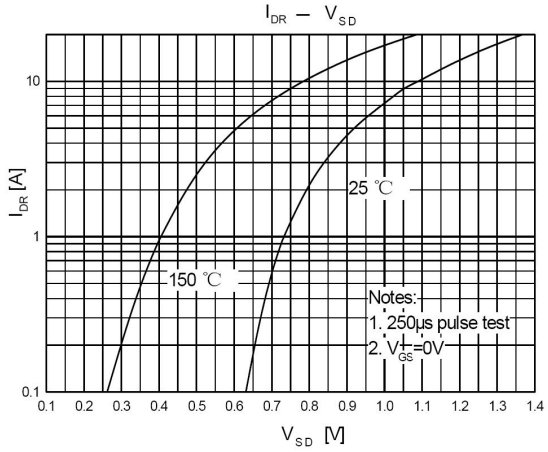
参数 Parameter	符号 Symbol	测试条件 Test Conditions		最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V	I_D=250μA	650			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=650V	V_{GS}=0V			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±30V	V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=6A		0.71	0.78	Ω
Forward Transconductance	g_{FS}	V_{DS}=40V	I_D=6A		13		S
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_S=12A			1.39	V
Input Capacitance	C_{iss}	V_{DS}=25V f=1.0MHz	V_{GS}=0V		1790	2410	pF
Output Capacitance	C_{oss}				175	229	pF
Reverse Transfer Capacitance	C_{rss}				23	31	pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=300V R_G=25Ω	I_D=12A		78	102	ns
Turn-On Rise Time	t_r				133	175	ns
Turn-Off Delay Time	$t_{d(off)}$				233	305	ns
Turn-Off Fall Time	t_f				104	160	ns

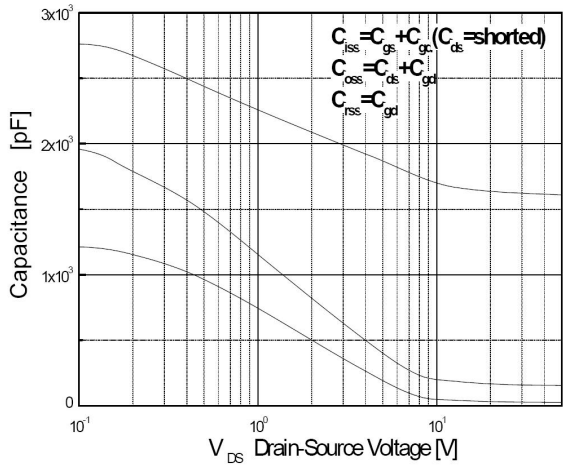
电参数曲线图 / Electrical Characteristic Curve

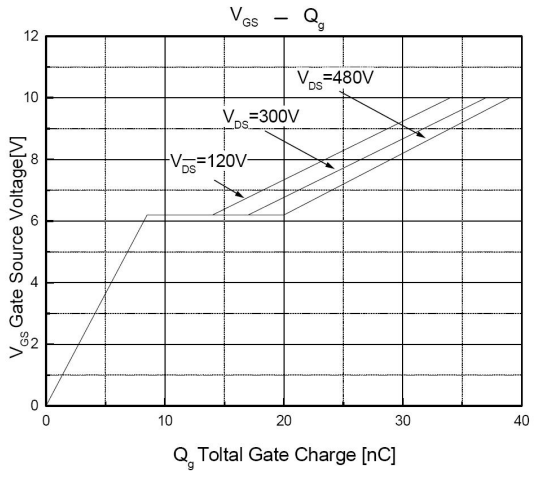






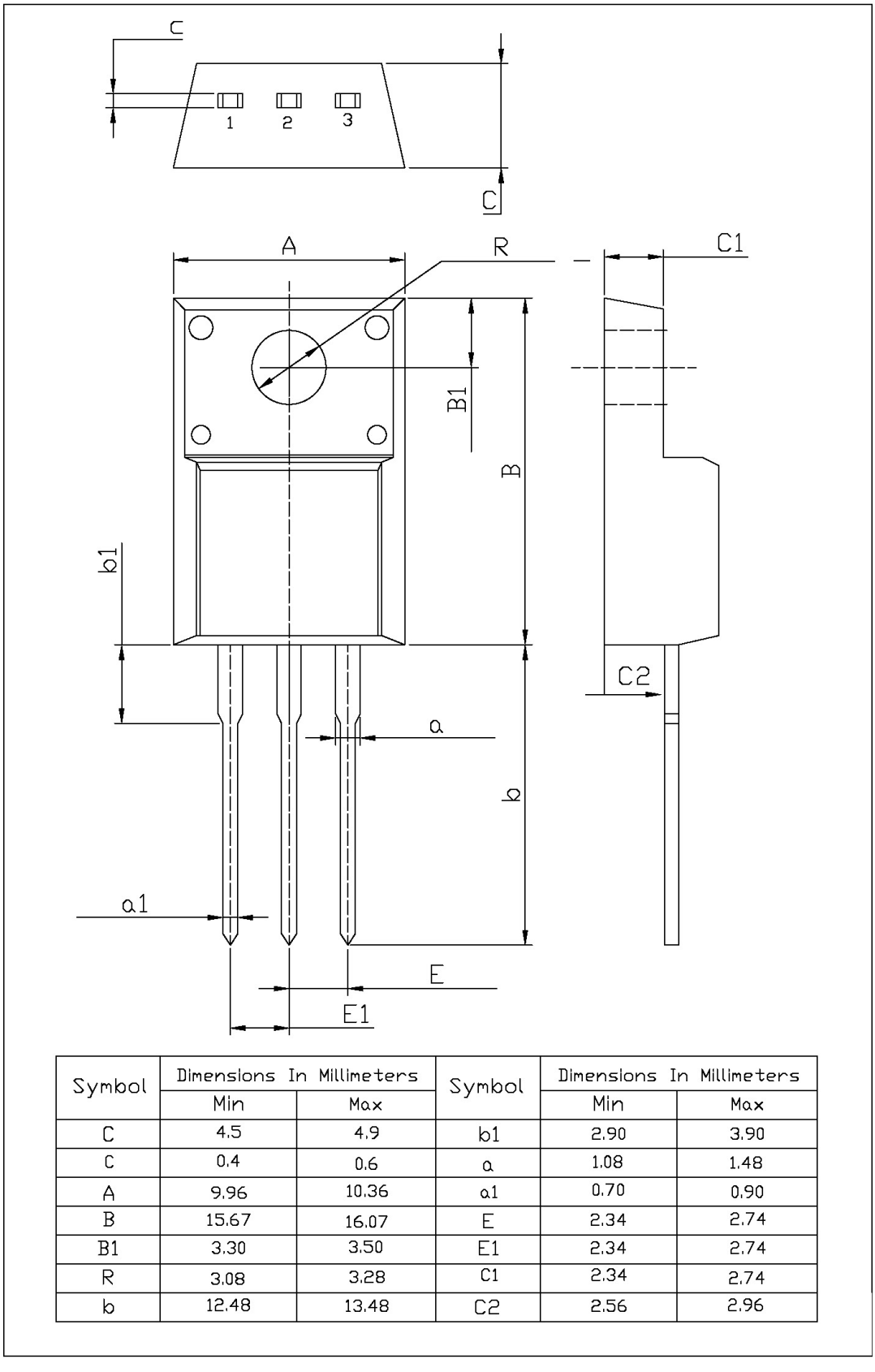






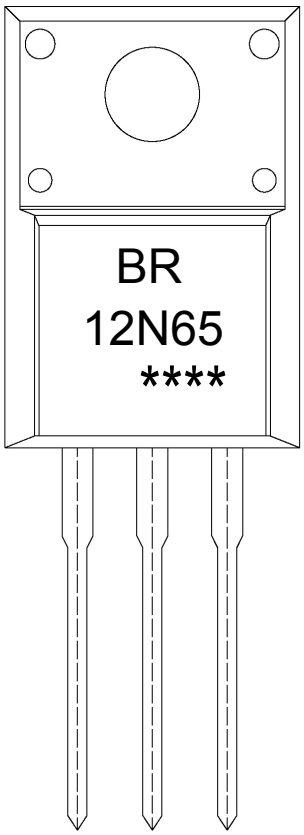
外形尺寸图 / Package Dimensions

TO-220FL 单位：mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
C	4.5	4.9	b1	2.90	3.90
c	0.4	0.6	a	1.08	1.48
A	9.96	10.36	a1	0.70	0.90
B	15.67	16.07	E	2.34	2.74
B1	3.30	3.50	E1	2.34	2.74
R	3.08	3.28	C1	2.34	2.74
b	12.48	13.48	C2	2.56	2.96

印章说明 / Marking Instructions



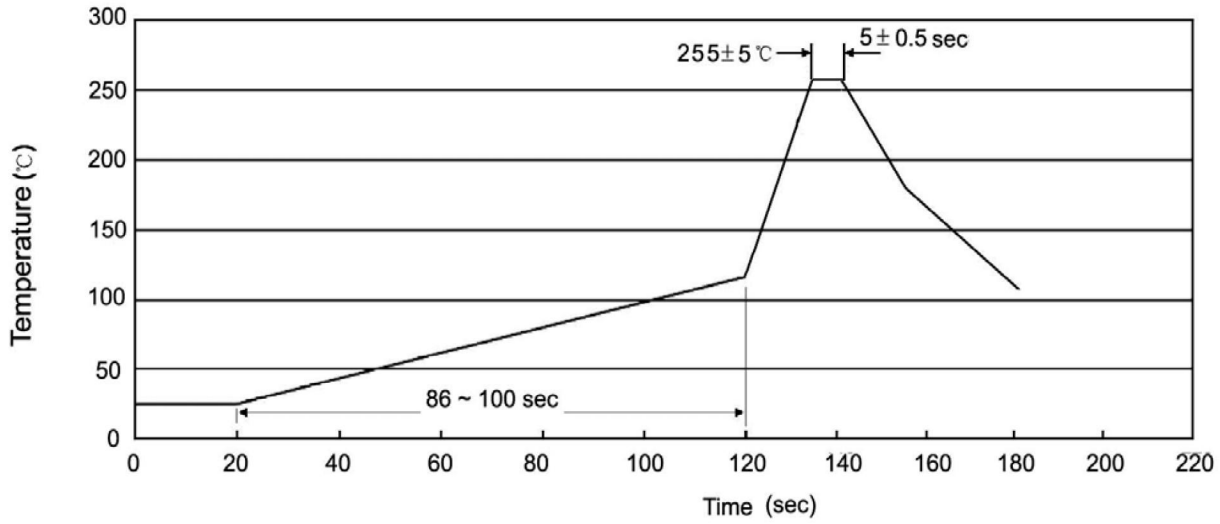
说明：

BR：	为公司代码
12N65：	为型号代码
****：	为生产批号代码，随生产批号变化。

Note:

BR:	Company Code
12N65:	Product Type.
****:	Lot No. Code, code change with Lot No.

波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)



说明：

1、预热温度 25～150℃，时间 60～90sec;

2、峰值温度 255±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:25~150℃, Time:60~90sec.

2.Peak Temp.:255±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：270±5℃　　时间：10±1 sec.　　Temp.:270±5℃　　Time:10±1 sec

包装规格 / Packaging SPEC.

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm^3)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-220FL	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

使用说明 / Notices