

/ Descriptions

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

/ Features

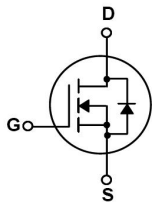
Low gate charge, low crss, fast switching.

/ Applications

DC/DC

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S

/ h_{FE} Classifications & Marking

See Marking Instructions.

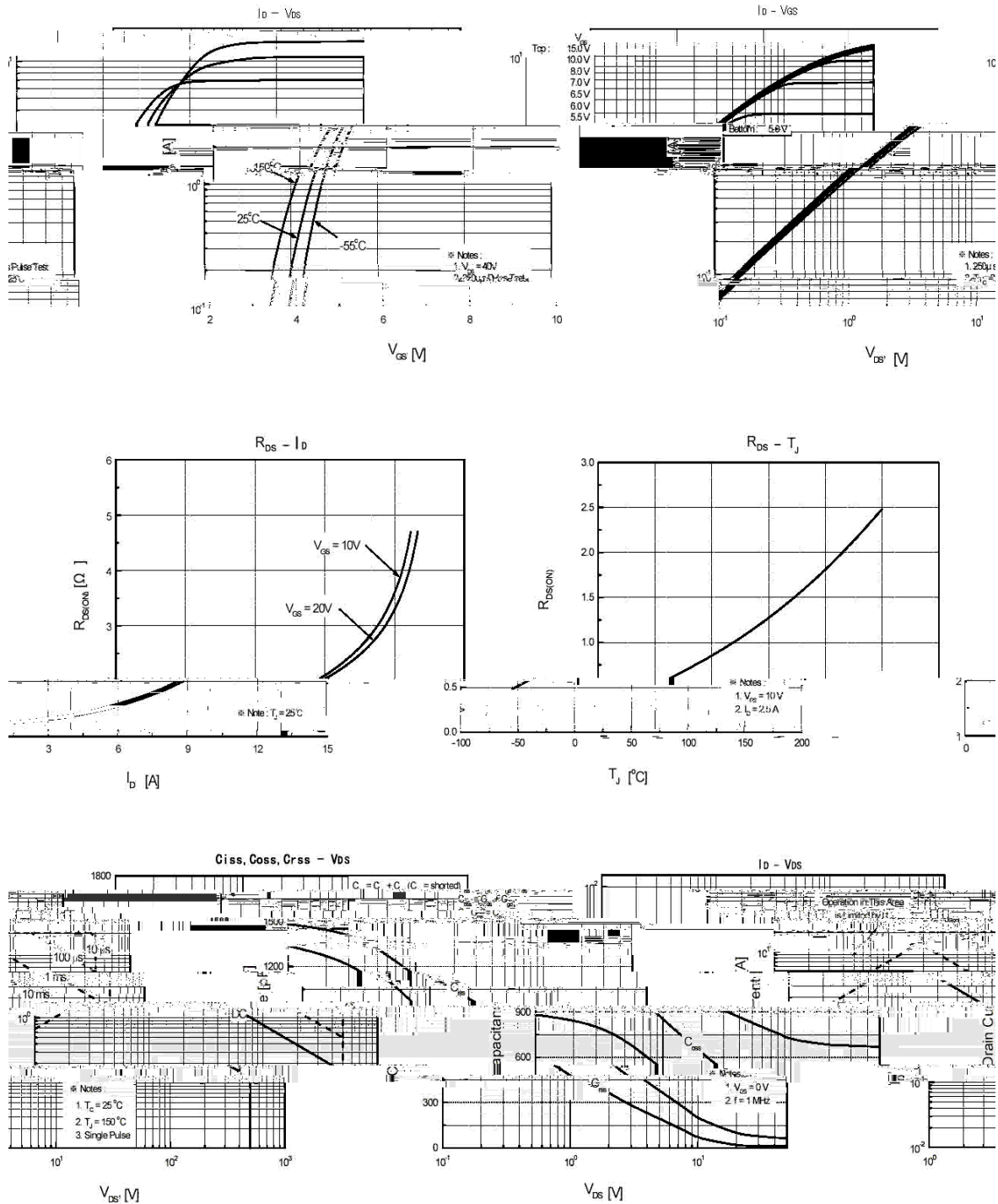
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	500	V
Drain Current	$I_D(T_C=25)$	5.0	A
Drain Current	$I_D(T_C=100)$	3.0	A
Drain Current - Pulsed	I_{DM}	20	A
Gate-Source Voltage	V_{GSS}	±30	V
Avalanche Current	I_{AR}	4.5	A
Single Pulsed Avalanche Energy	E_{AS}	292	mJ
Repetitive Avalanche Energy	E_{AR}	8.75	mJ
Power Dissipation	$P_D(T_C=25)$	38	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	

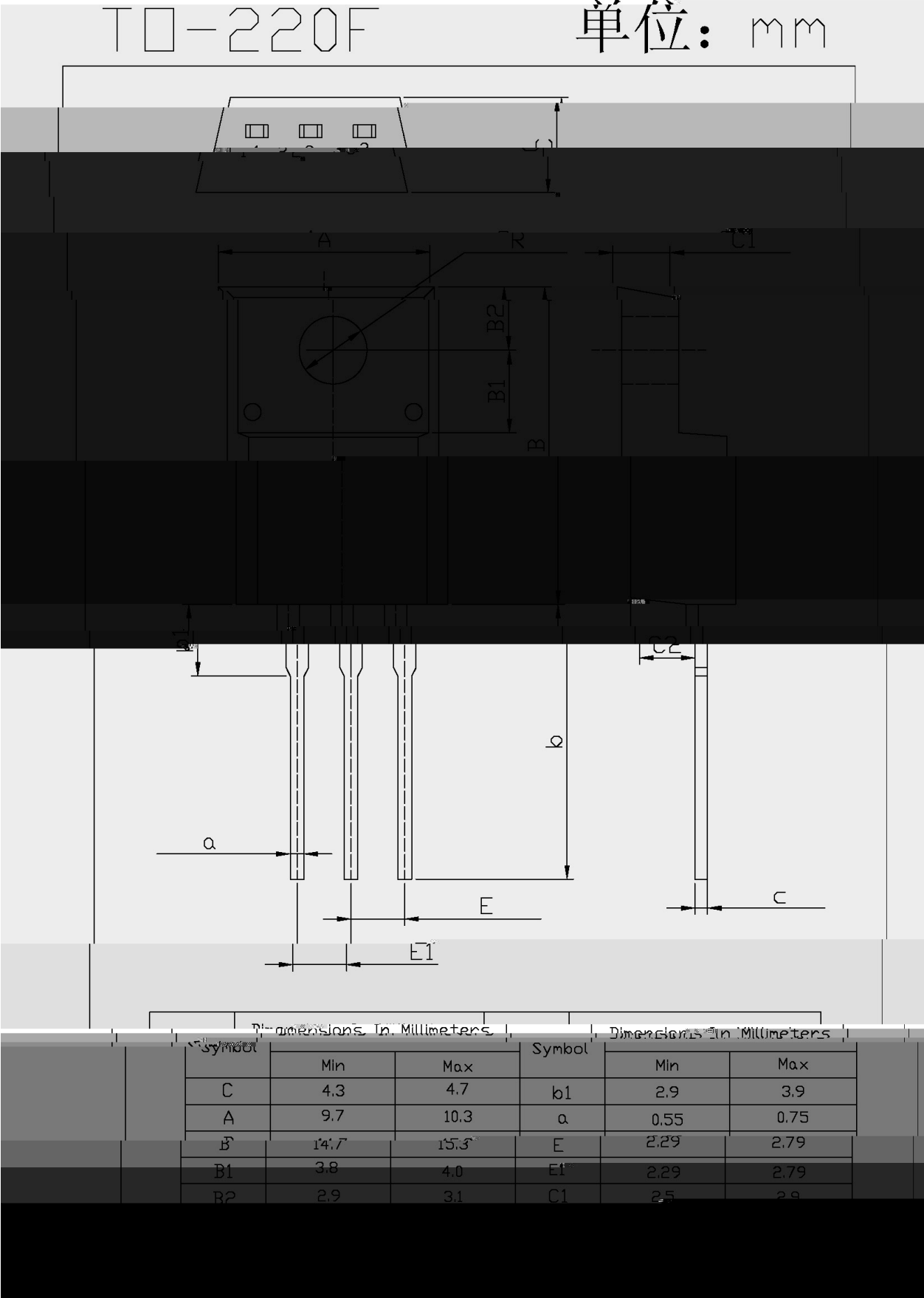
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	500			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=500V$ $V_{GS}=0V$			10	μA
		$V_{DS}=400V$ $T_C=125$			100	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=2.5A$		1.15	1.4	Ω
Forward Transconductance	g_{FS}	$V_{DS}=40V$ $I_D=2.5A$		4.2		S
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=5.0A$			1.5	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		680	900	pF
Output Capacitance	C_{oss}			85	110	
Reverse Transfer Capacitance	C_{rss}			15	20	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=250V$ $I_D=4.5A$ $R_G=25\Omega$		20	50	ns
Turn-On Rise Time	t_r			40	90	
Turn-Off Delay Time	$t_{d(off)}$			90	190	
Turn-Off Fall Time	t_f			45	100	

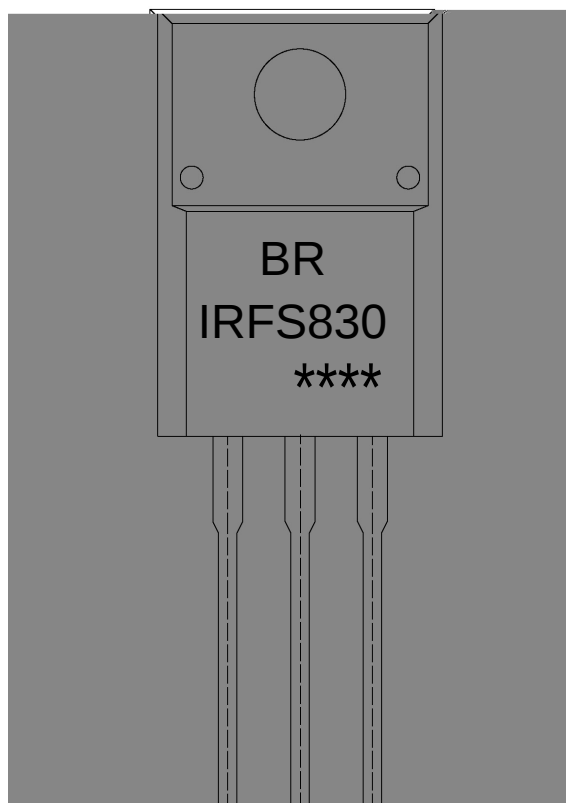
/ Electrical Characteristic Curve



/ Package Dimensions



/ Marking Instructions



BR

IRFS830

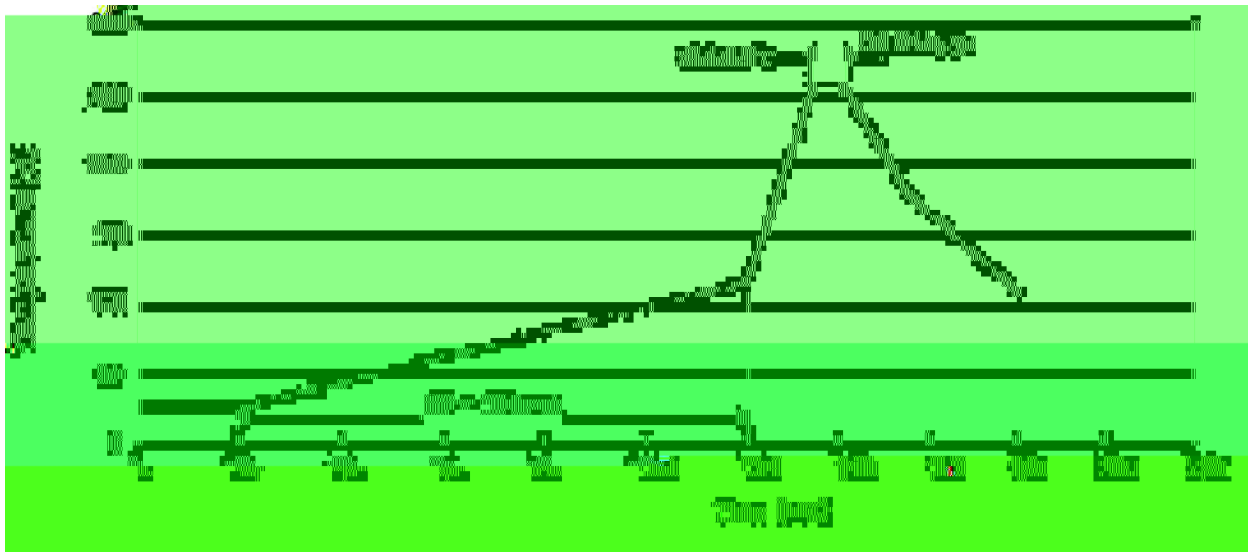
Note:

BR: Company Code

IRFS830: Product Type.

****: 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±0.5sec. | |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

/ Resistance to Soldering Heat Test Conditions

270±5 10±1 sec. Temp.:270±5 Time:10±1 sec

/ Packaging SPEC.

/ BULK

Package Type	Units					Dimension (unit mm ³)		
	Units/Bag /	Bags/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Bag	Inner Box	Outer Box
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

/ Notices