BRFL70R600C

Rev.A Jan.-2024

DATA SHEET

/ Descriptions

TO-220FL N 700V

N-CHANNEL 700V Super-Junction Power MOSFET in a TO-220FL Plastic Package.

/ Features

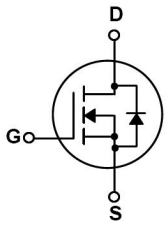
$R_{DS(on)}$×Qg 100% RoHS

Very low $R_{DS(on)}$×Qg,100% avalanche tested,RoHS compliant, HF product.

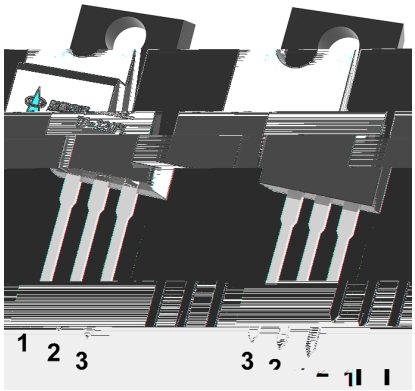
/ Applications

For switch mode power supply, uninterruptible power supply, power factor correction.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S

/ Marking

See Marking Instructions.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	700	V
Drain Current	I_D(Tc=25)	7	A
Drain Current - Pulsed	I_{DM}	28	A
Gate-Source Voltage	V_{GS}	±30	V
Single Pulsed Avalanche Energy	E_{AS}	200	mJ
Avalanche Current	I_{AS}	6.1	A
Power Dissipation	P_D(Tc=25)	31	W
Operating and Storage Temperature Range	T_J,T_{STG}	-55 to 150	
Junction-to-Case	$R_{\theta JC}$	4	/W
Junction-to-Ambient	$R_{\theta JA}$	62.5	/W

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V	I_D=250μA	700	745		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=700V T_J=25	V_{GS}=0V			1.0	μA
Gate-Body Leakage Current, Forward	I_{GSS}	V_{GS}=±30V				±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	2.5	3.4	4.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=3.5A		495	600	mΩ
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V T	I_{SD}=7A				

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Diode Forward Current	I_S				7	A
Total Gate Charge	Q_g	V_{DS}=560V I_D=7.0A V_{GS}=10V		17		nC
Gate-Source Charge	Q_{gs}			6.5		nC
Gate-Drain Charge	Q_{gd}			7		nC
Reverse recovery time	T_{rr}	V_R=50 V, I_F=7.0A, dI_F/dt=100 A/μs		250		ns
Reverse recovery charge	Q_{rr}			2.8		uC

/ Electrical Characteristic Curve

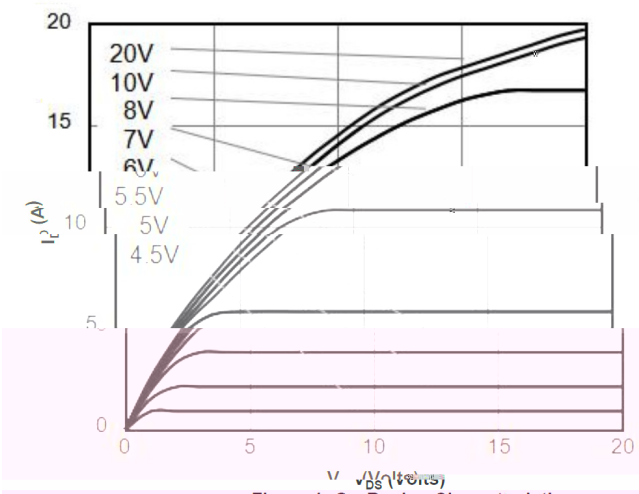


Figure 1: On-Region Characteristics

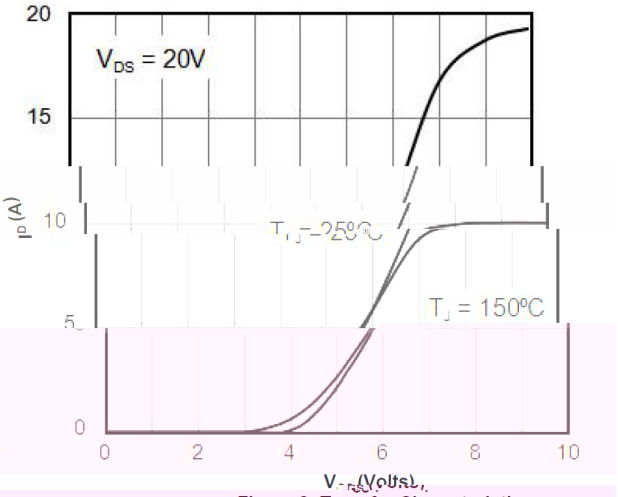


Figure 2: Transfer Characteristics

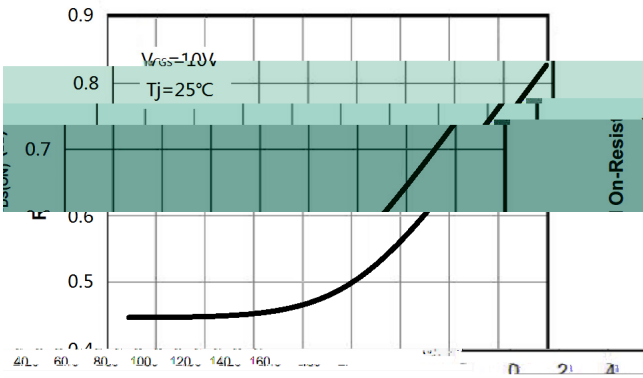


Figure 4: On-Resistance vs. Junction Temperature

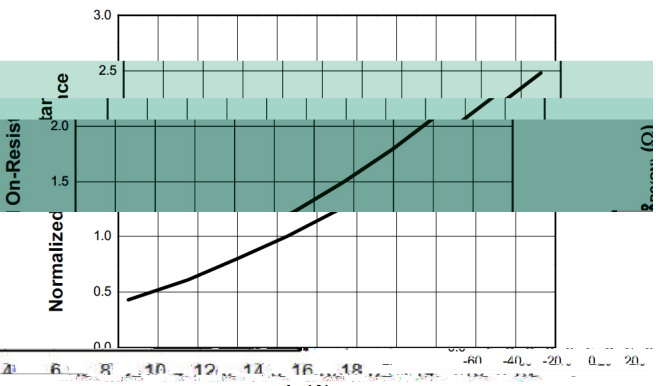


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

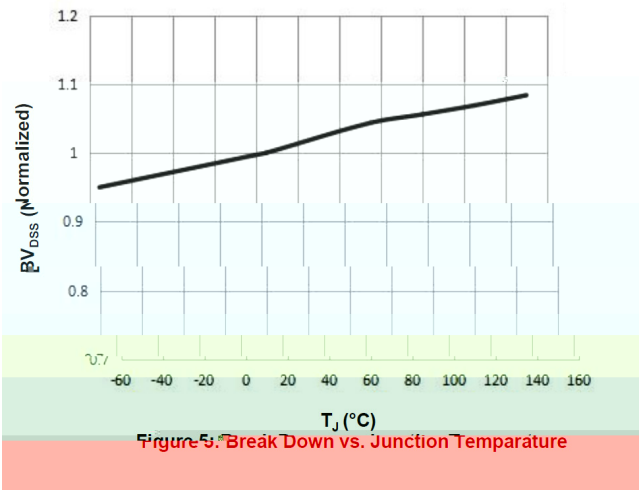


Figure 5: Break Down vs. Junction Temparature

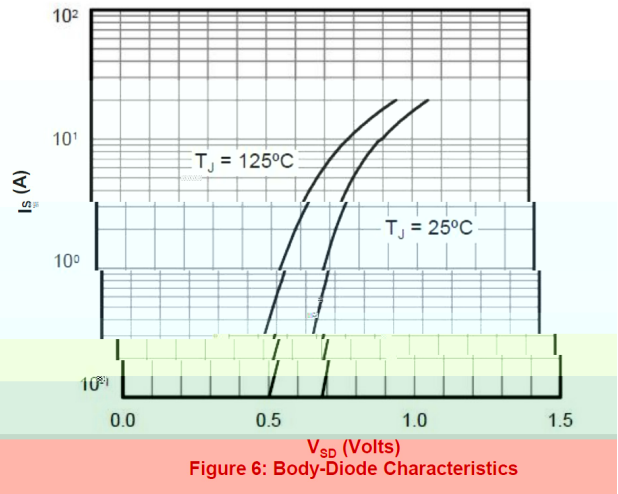
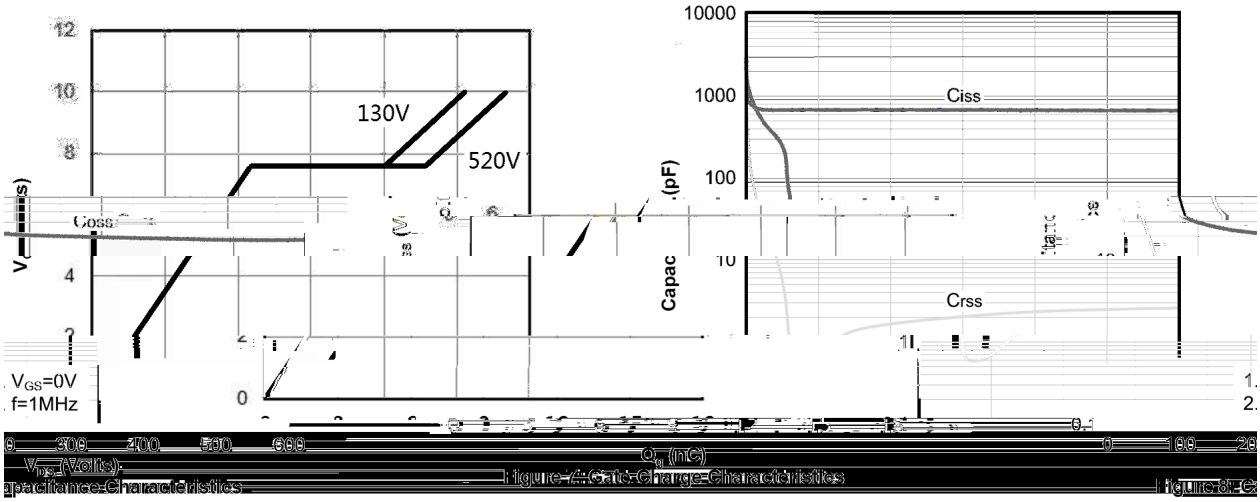


Figure 6: Body-Diode Characteristics

/ Electrical Characteristic Curve



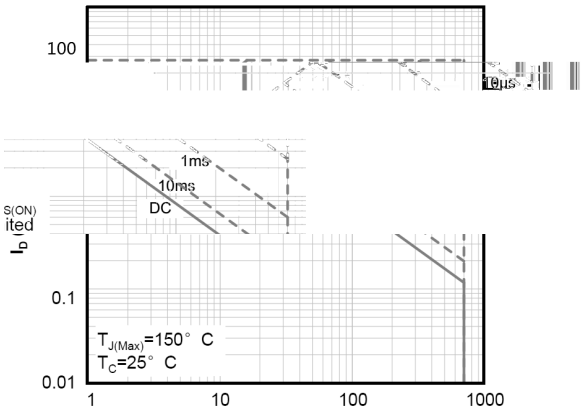
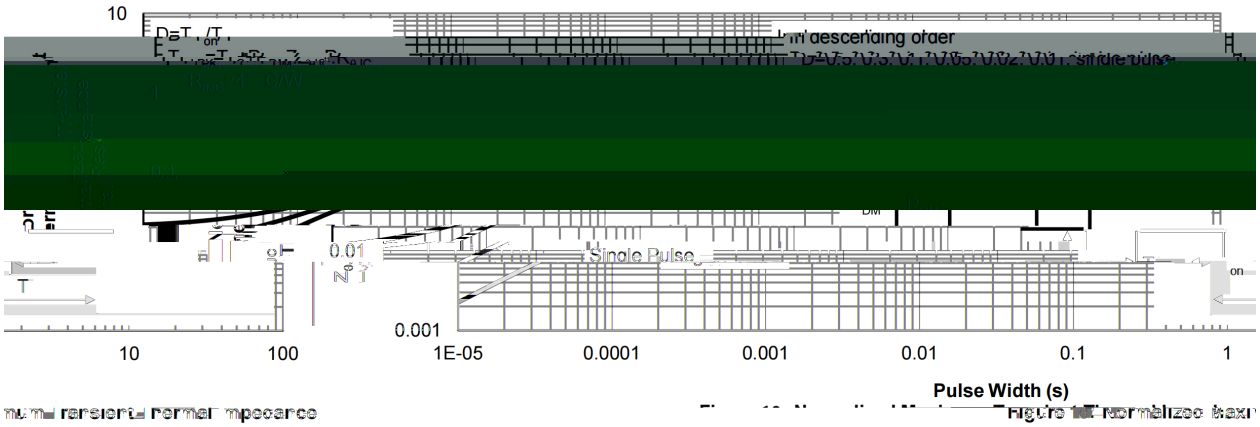
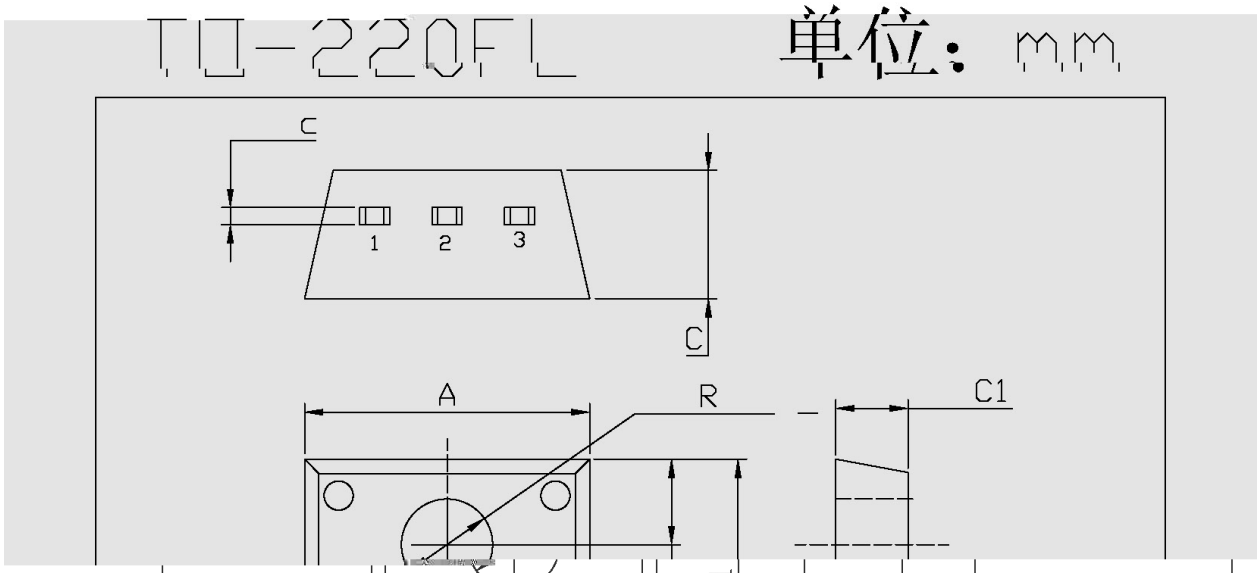
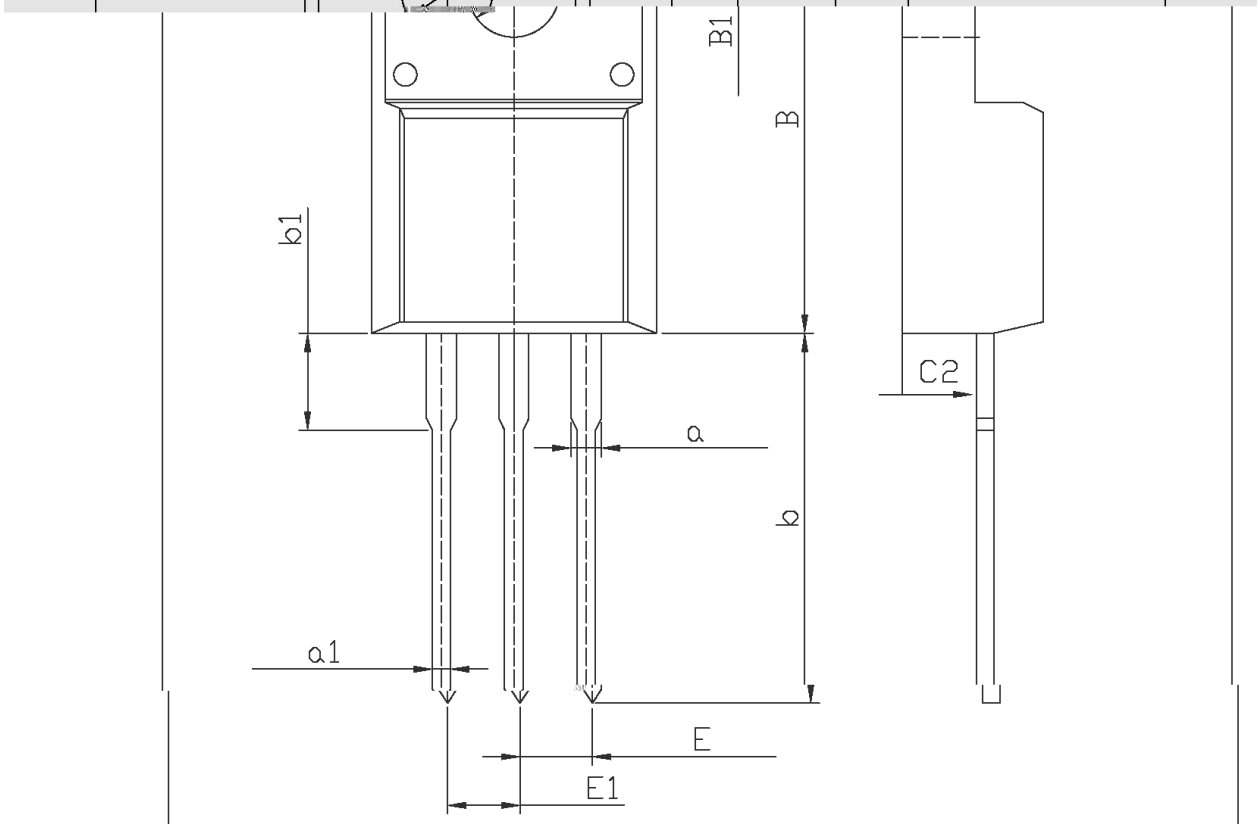


Figure 9 : Maximum Forward Biased Safe Operating Area



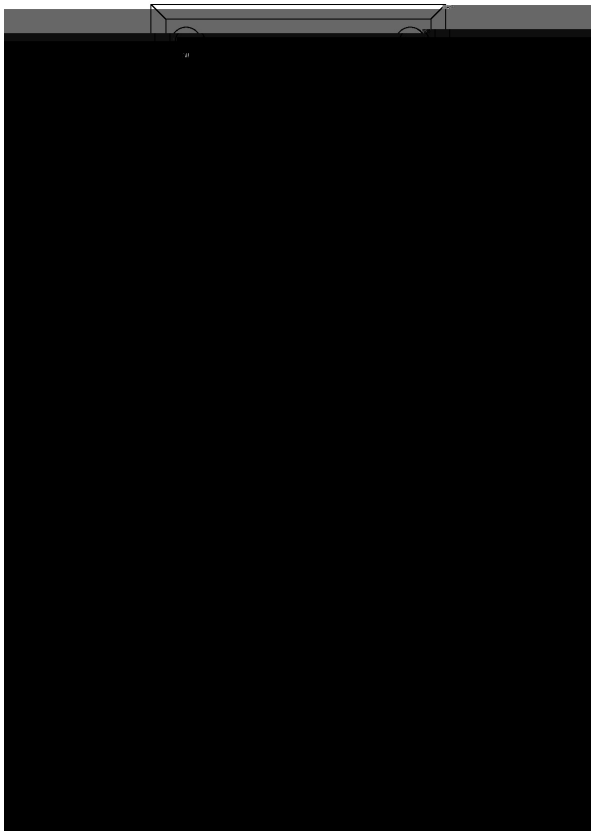
/ Package Dimensions





Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
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

/ Marking Instructions



BR

70R600C

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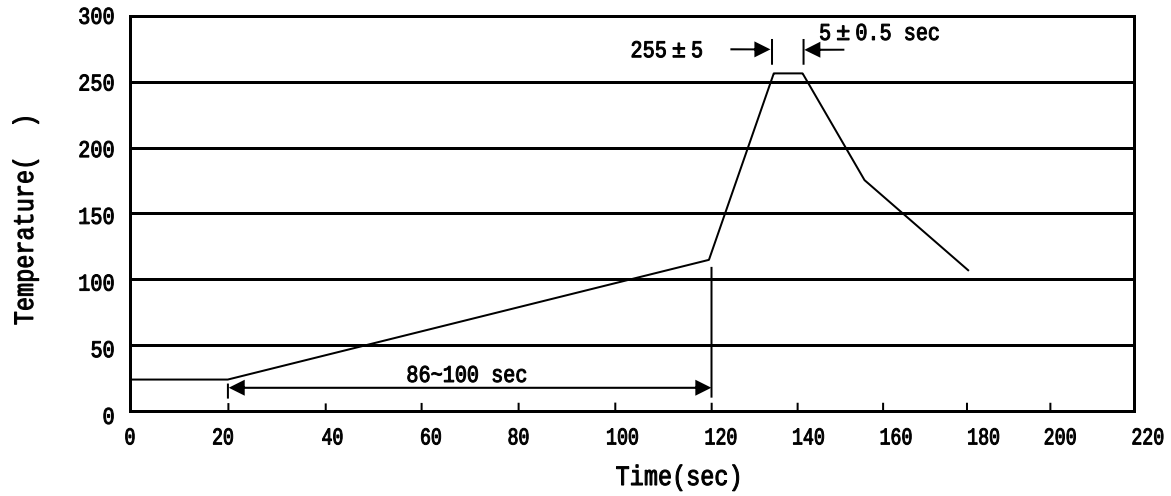
Note:

BR:	Company Code
70R600C:	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±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.

/ TUBE

Package Type	Units					Dimension (unit mm³)		
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-220FL	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

/ Notices