

BRFL65R380T

Rev.B Sep.-2025

/ Descriptions

TO-220FL N 650V

N-CHANNEL 650V Super-Junction Power MOSFET in a TO-220FL Plastic Package.

/ Features

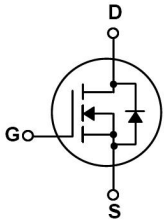
$R_{DS(on)} \times Q_g$ 100% ROHS

Very low $R_{DS(on)} \times Q_g$, 100% avalanche tested, RoHS compliant.

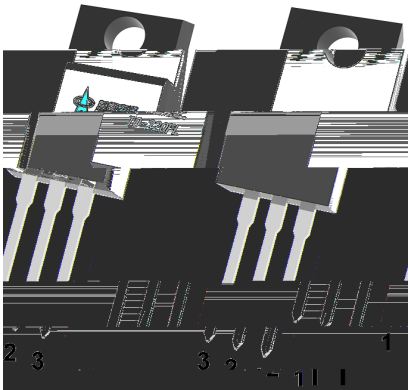
/ Applications

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.

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DATA SHEET

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Diode Forward Current	I_S				11	A
Total Gate Charge	Q_g	$V_{DS}=480V$ $I_D=5.5A$ $V_{GS}=10V$		15.8		nC

/ Electrical Characteristic Curve

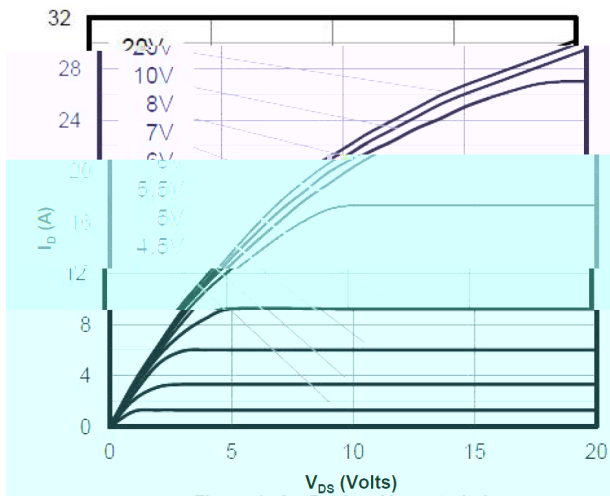


Figure 1: On-Region Characteristics

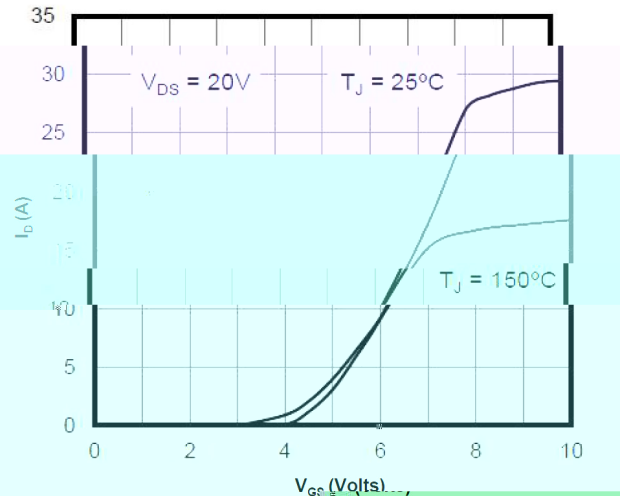


Figure 2: Transfer Characteristics

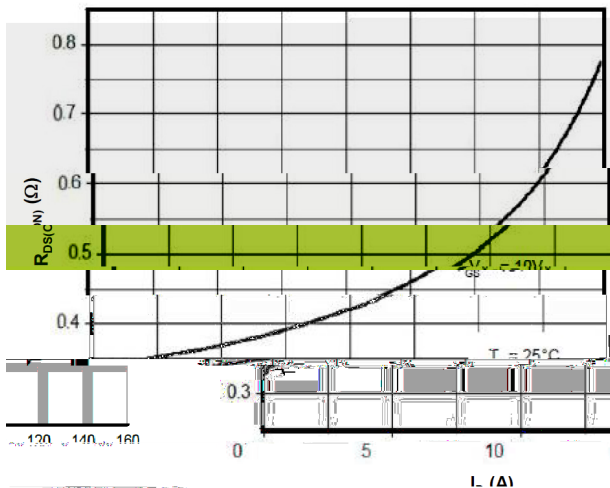


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

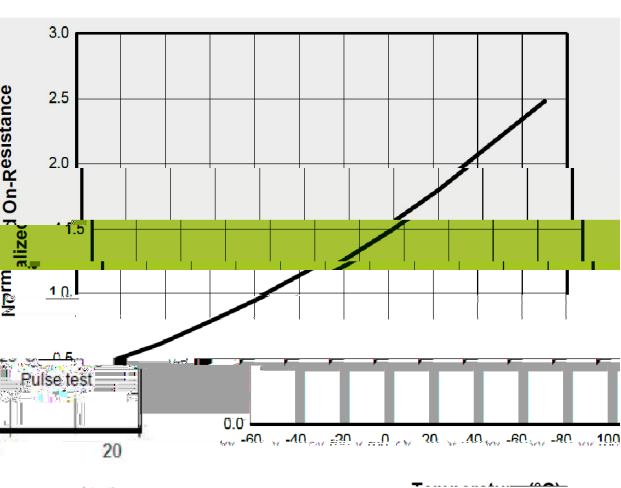
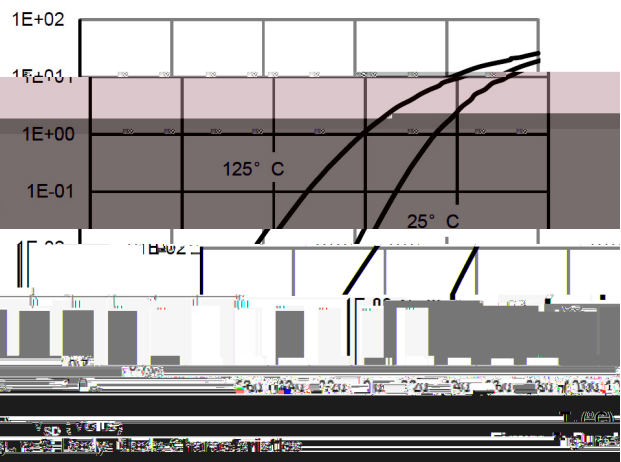
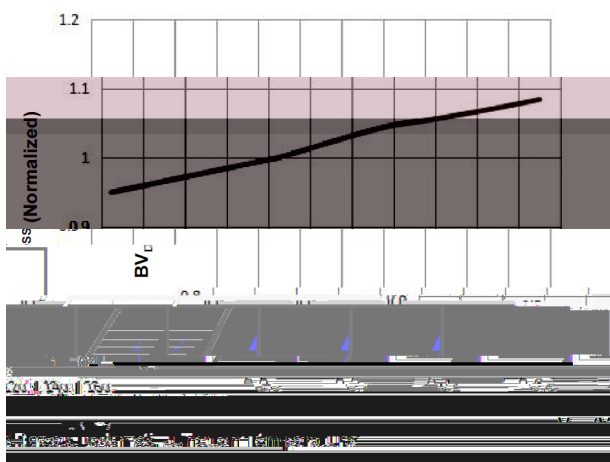


Figure 4: On-Resistance vs. Junction Temperature



/ Electrical Characteristic Curve

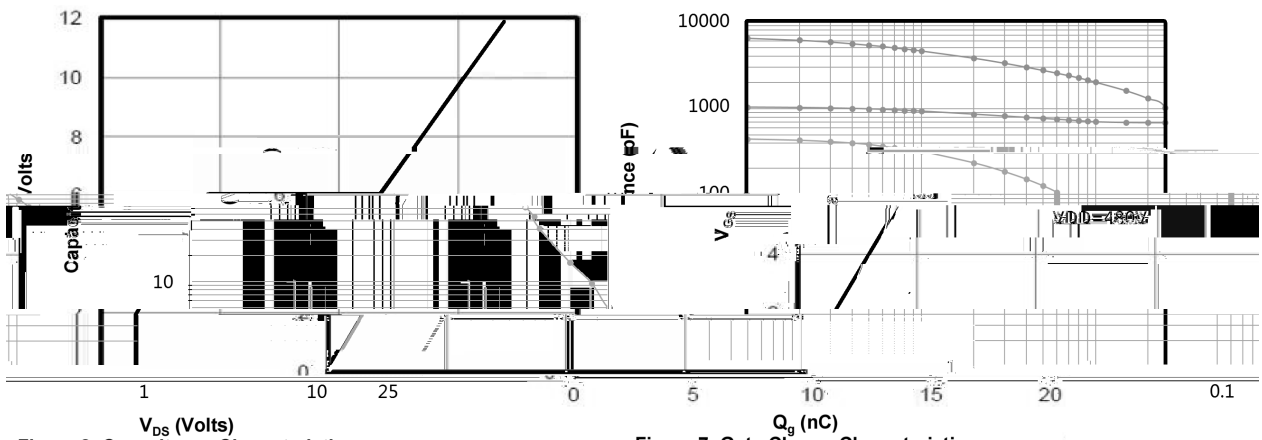


Figure 8: Capacitance Characteristics

Figure 7: Gate-Charge Characteristics

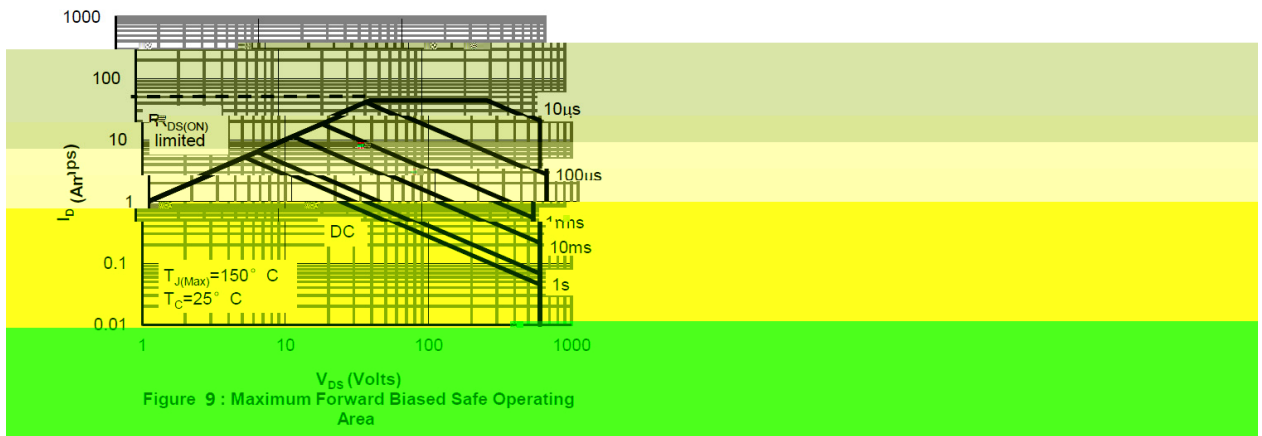


Figure 9: Maximum Forward Biased Safe Operating Area

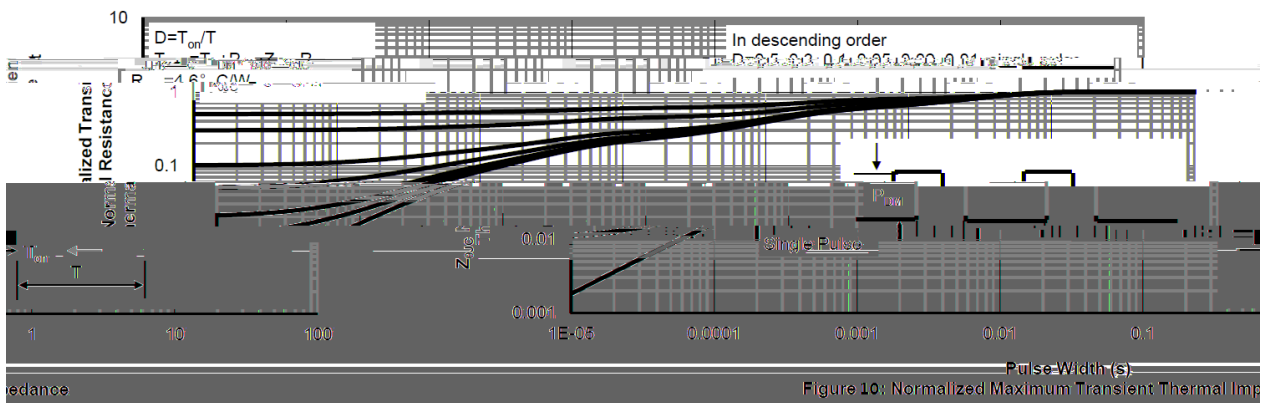
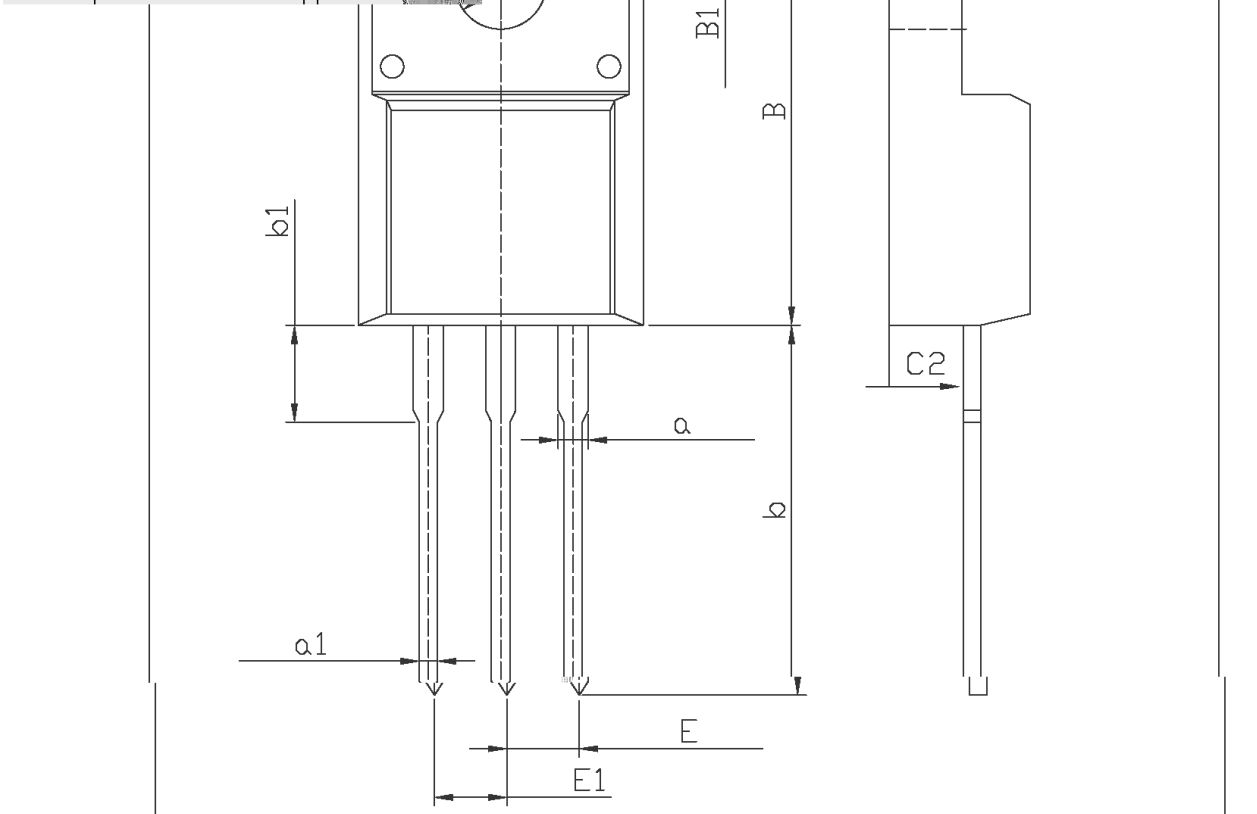
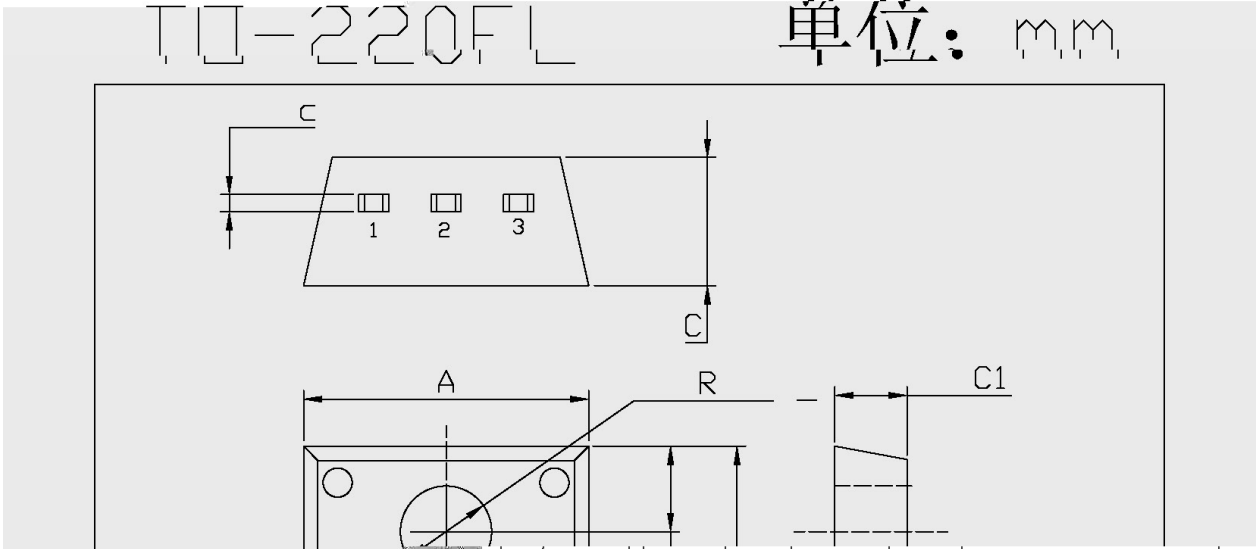


Figure 10: Normalized Maximum Transient Thermal Impedance

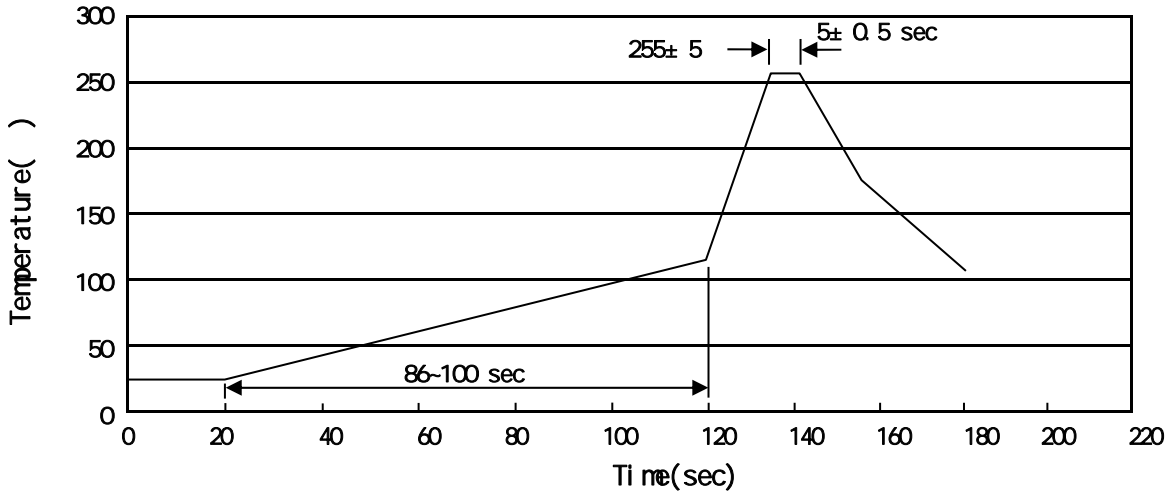
/ Package Dimensions



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
C	0.4	0.6	b1	22.90	23.90
A	9.50	10.50	a	1.08	1.48
B	15.57	16.07	a1	0.70	0.90
B1	3.30	3.50	E	2.34	2.74
R	3.08	3.28	E1	2.34	2.74
b	12.48	13.48	C1	2.34	2.74
			C2	2.56	2.96



() / 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 mm ³)		
	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