BRFL65R180T

Rev.A Apr.-2025

DATA SHEET

˜Yت / Descriptions

TO-220FL N 650V

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

◕ È / Features

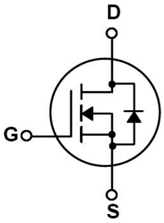
$R_{DS(on)}$×Qg 100% ROHS

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

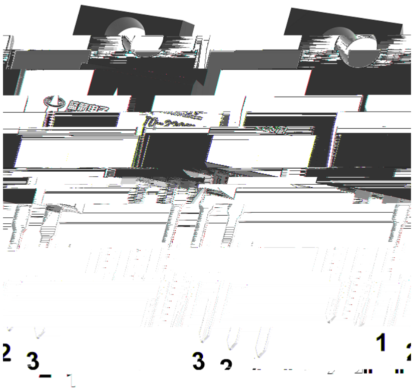
ﻴ ڍ / Applications

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

ﬢق ﻂ ﻉ / Equivalent Circuit



ã ﻻ ٺ / Pinning



PIN1 G PIN 2 D PIN 3 S

ﻉ ﻬ ב / Marking

See Marking Instructions.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	650	V
Drain Current	I_D(Tc=25)	20	A
Drain Current - Pulsed	I_{DM}	60	A
Gate-Source Voltage	V_{GS}	±30	V
Single Pulsed Avalanche Energy	E_{AS}	488	mJ
Avalanche Current	I_{AS}	9.5	A
Power Dissipation	P_D(Tc=25)	34	W
Operating and Storage Temperature Range	T_J,T91$_{G}$uc	-55 to 1V50	
Junction-to-Case	R_{dJC}	3.6	/W
Junction-to-Ambient	R_{dJA}	80	/W

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250εA	650			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=650V V_{GS}=0V T_J=25			1.0	εA
Gate-Body Leakage Current, Forward	I_{GSS}	V_{GS}=±30V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250εA	2.5		4.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=10A		150	180	mq
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_{SD}=1A T_J=25			1.2	V
Gate Resistance	R_g	V_{GS} = 0V f = 1.0MHz		3.5		q
Input Capacitance	C_{iss}	V_{DS}=100V V_{GS}=0V f=1.0MHz		1500		pF
Output Capacitance	C_{oss} 3.1 00=0V ( )-457.4(pF)]TJ0 056 0 3380.98 85.38 .48.04 ref 056 12 342.					

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Diode Forward Current	I_S			20		A
Total Gate Charge	Q_g	V_{DS}=480V I_D=10A V_{GS}=10V		28.1		nC
Gate-Source Charge	Q_{gs}			8.1		nC
Gate-Drain Charge	Q_{gd}			2.1		nC
Reverse recovery time	t_{rr}	V_R=400 V, I_F=10A, dI_F/dt=100 A/εs		283		ns
Reverse recovery charge	Q_{rr}			3.3		uC

Electrical Characteristic Curve

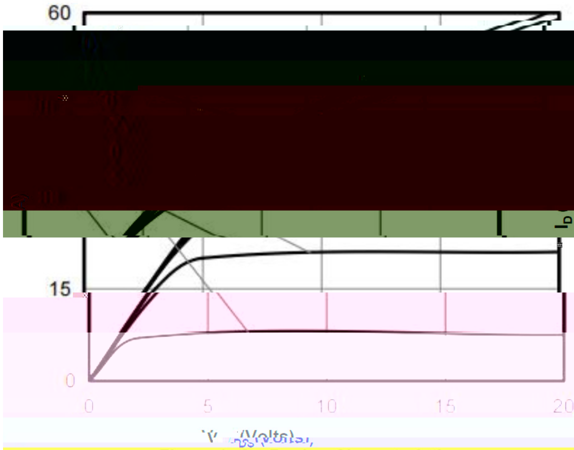


Figure 1: On-Region Characteristics

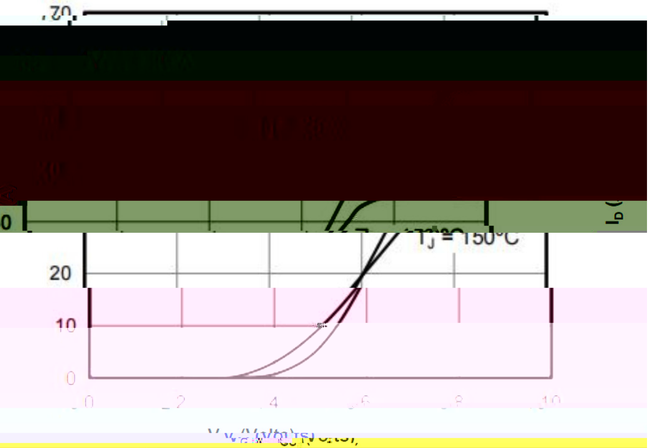
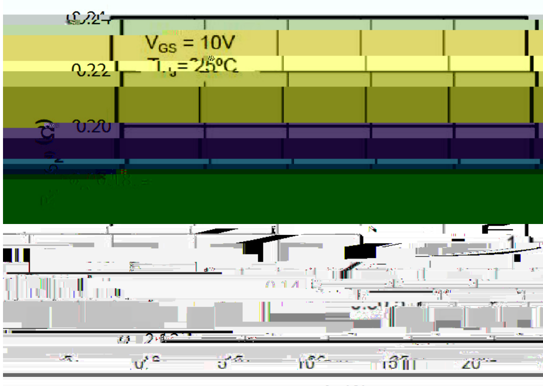
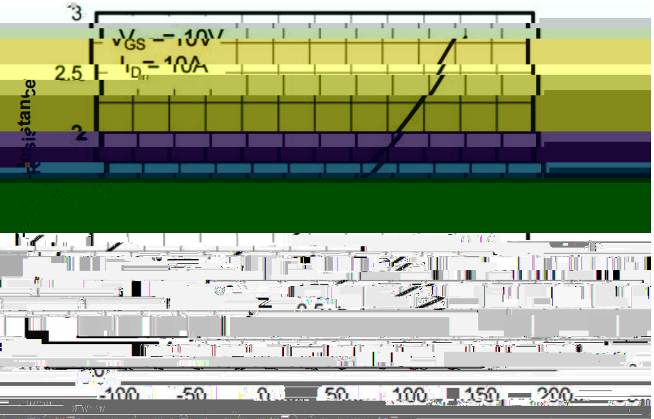
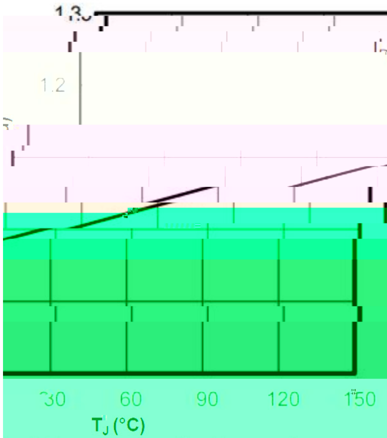


Figure 2: Transfer Characteristics





Voltage



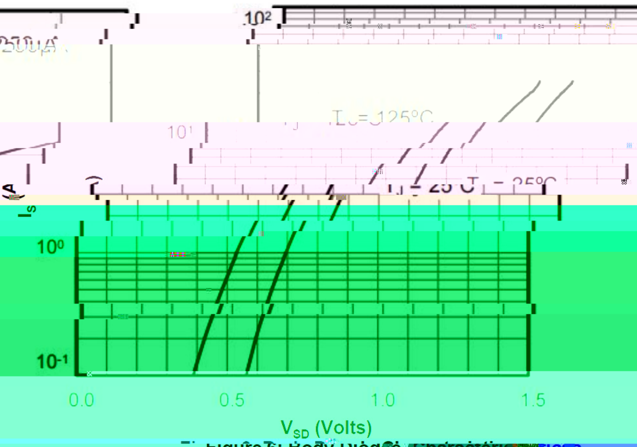
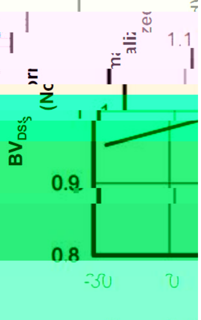


Figure 6: Body-Diode Characteristics



/ Electrical Characteristic Curve

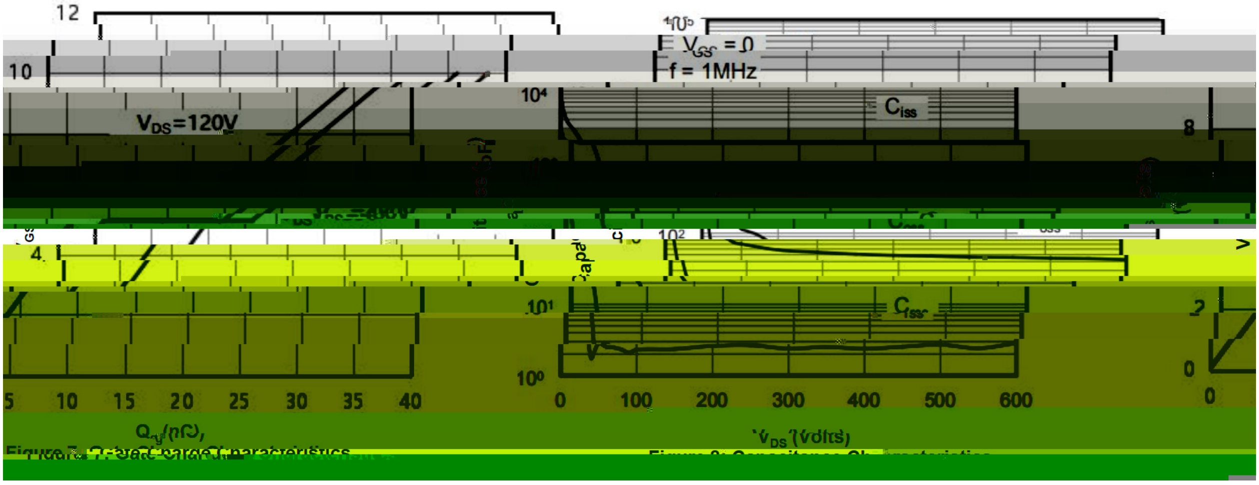
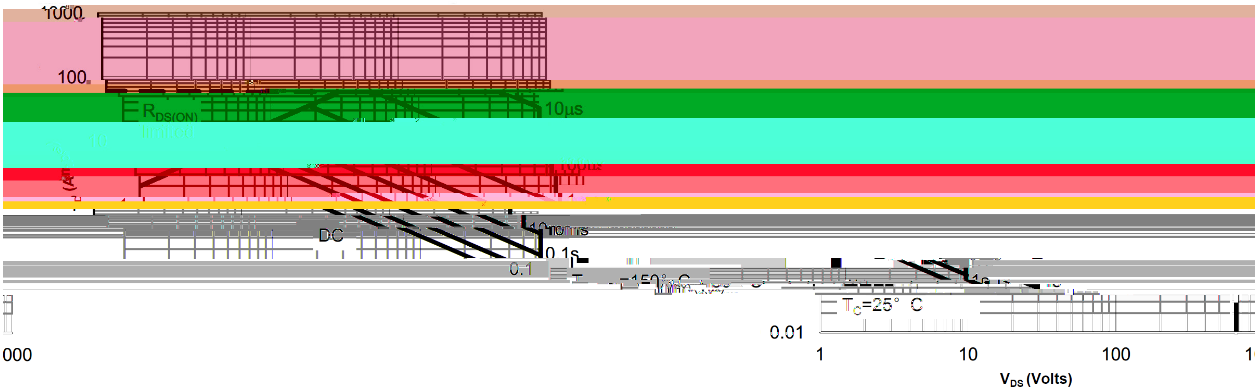


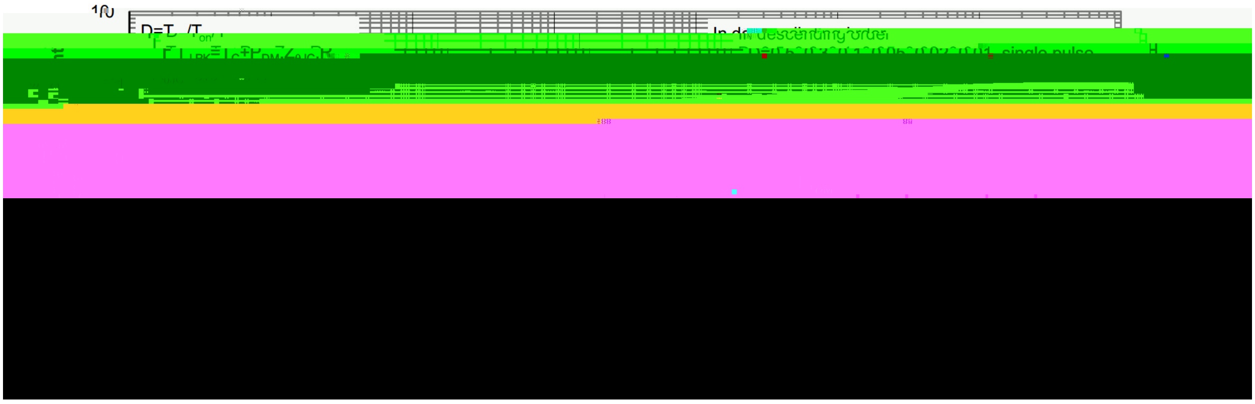
Figure 7: Gate charge characteristics

Figure 8: Capacitance Characteristics



Area

Figure 9: Maximum Forward Biased Safe Operating Area



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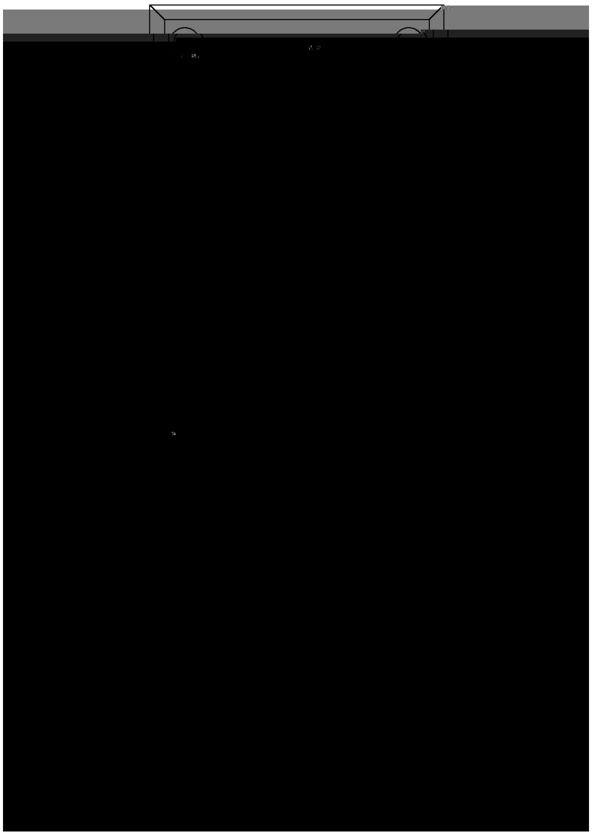

BR

65R180T

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Note:

BR:	Company Code
65R180T:	Product Type Code
****:	Lot No. Code, code change with Lot No

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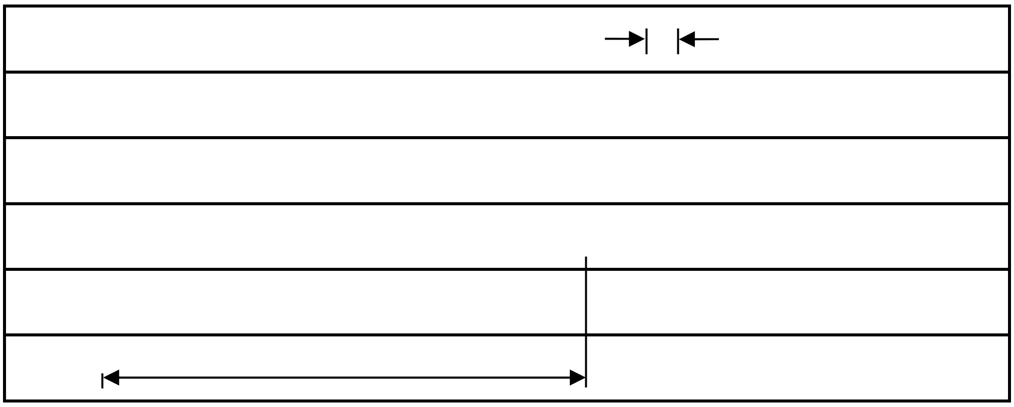

Note:

1 25 150 60 90sec;

2 255±5 5±0.5sec;

3 2 10 /sec.

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

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

3. Cooling Speed: 2~10 /sec.

⅃ ü q ̄ `Y Ţ / Resistance to Soldering Heat Test Conditions

270±5 10±1 sec.

Temp.:270±5 Time:10±1 sec

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/ TUBE

Package Type	Units					Dimension (unit mm^3)		
TO-220FL	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

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