

BRCS050N04BD

Rev.B Nov.-2022

/ Descriptions

TO-263 N
N-CHANNEL MOSFET in a TO-263 Plastic Package.

/ Features

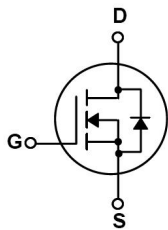
Ultra Low On-Resistance,fast switching,HF Product.

/ Applications

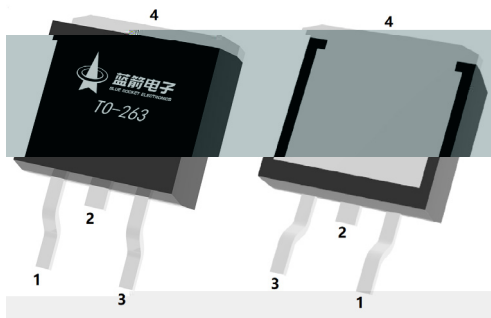
PFC

These devices are well suited for high efficient switched mode power supplies Active power factor correction, electronic lamp ballast based on half bridge topology.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 4 D PIN 3 S

/ Marking

See Marking Instructions.

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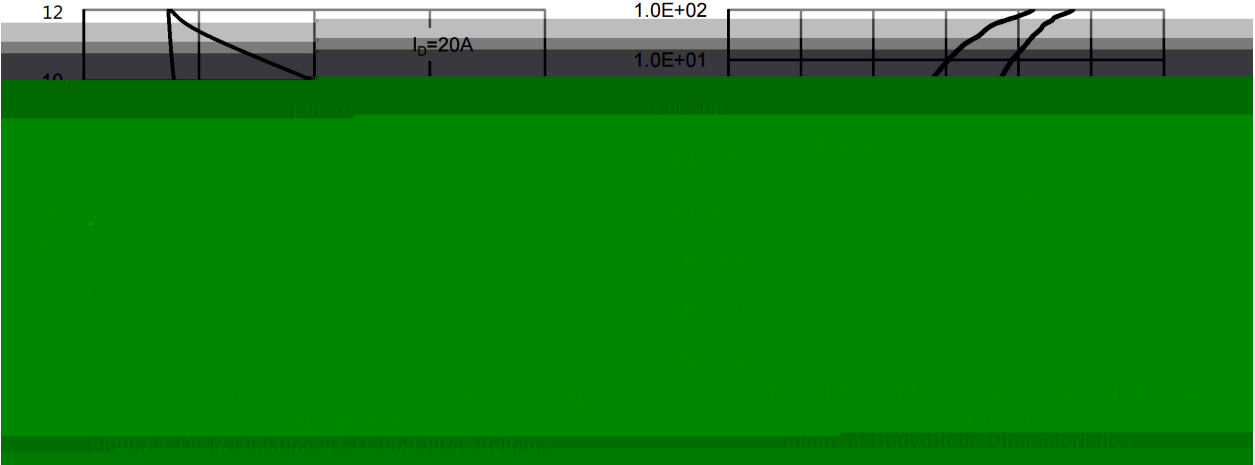
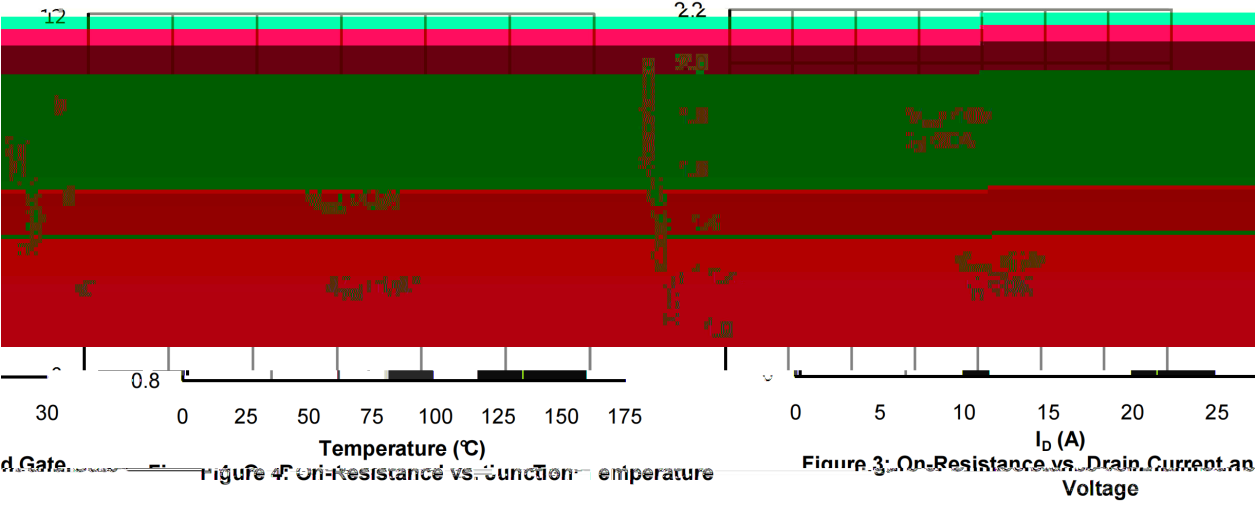
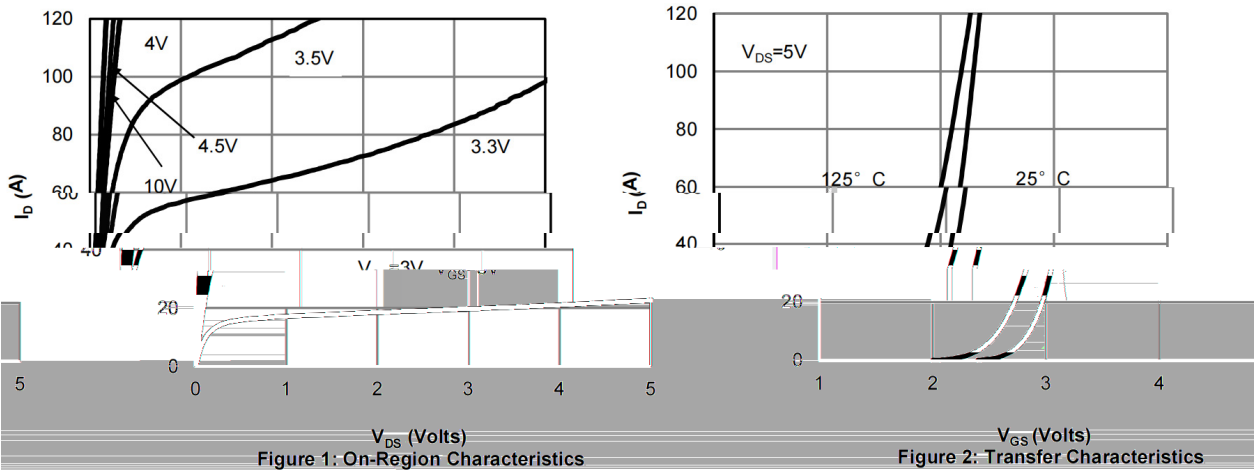
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	40	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	196	A
Pulsed Drain Current		I_{DM}	500	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy(L=0.5mH)		E_{AS}	561.8	mJ
Avalanche Current		I_{AS}	26.5	A
Total Power Dissipation		$P_D(T_c=25^\circ\text{C})$	347	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	15	/W
	Steady-State		60	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	0.36	

Parameter

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	$Q_g(10V)$	$V_{GS}=10V$ $V_{DS}=20V$ $I_D=20A$		70		nC
Total Gate Charge	$Q_g(4.5V)$			15		
Gate Source Charge	Q_{gs}			15		
Gate Drain Charge	Q_{gd}			22		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=20V$ $R_L=1\Omega$ $R_{GEN}=3\Omega$		15		ns
Turn-On Rise Time	t_r			30		
Turn-Off Delay Time	$t_{d(off)}$			54		
Turn-Off Fall Time	t_f			20		

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

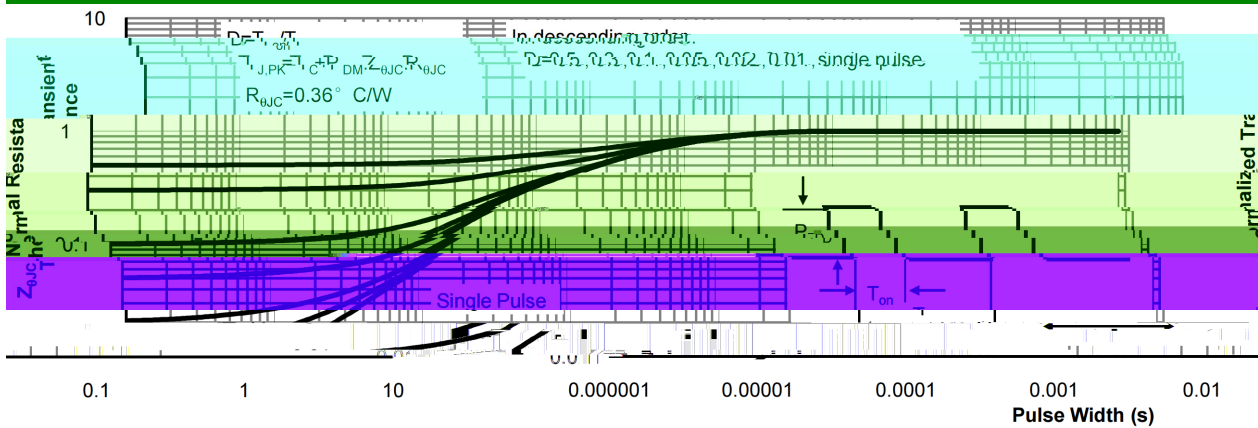
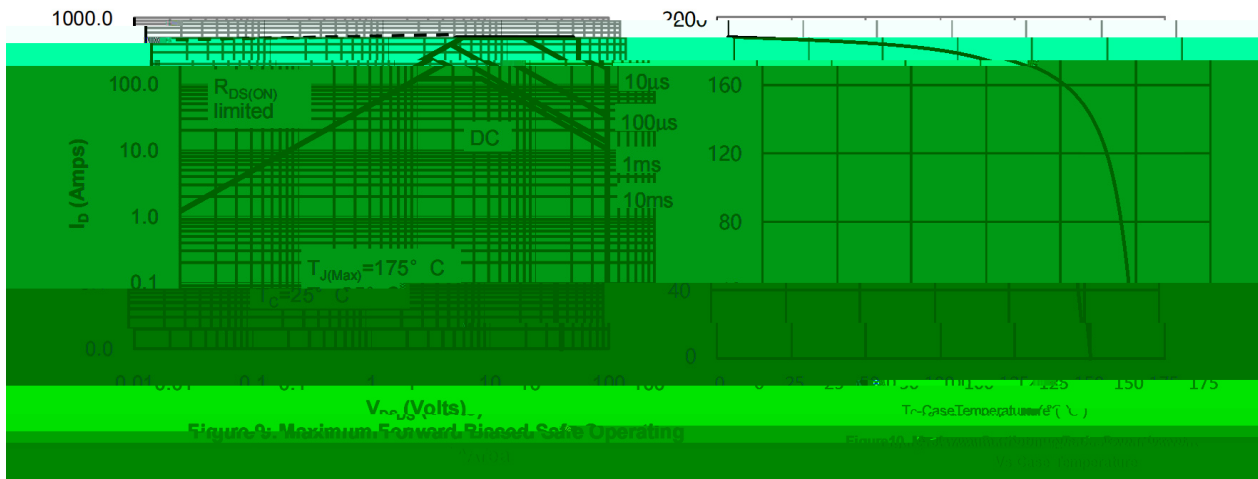
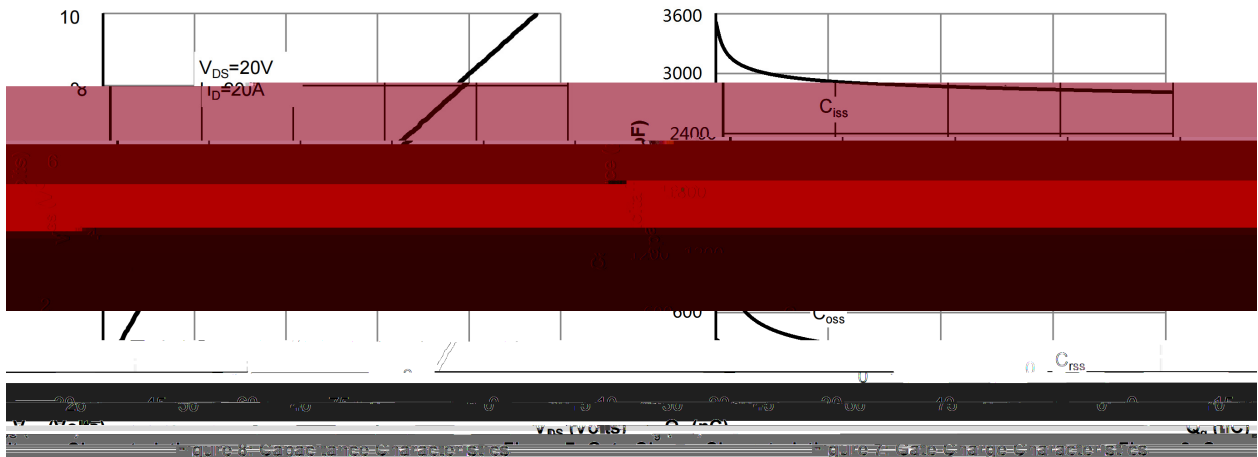
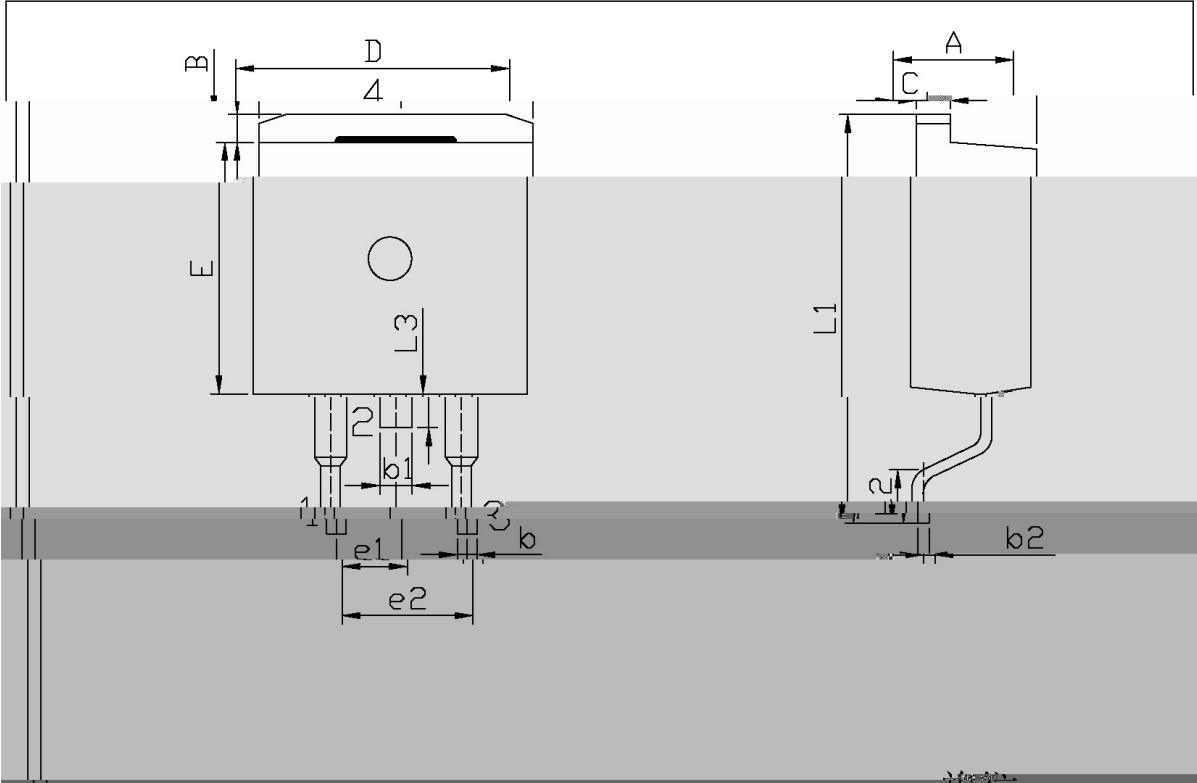


Figure 11: Normalized Maximum Transient Thermal Impedance

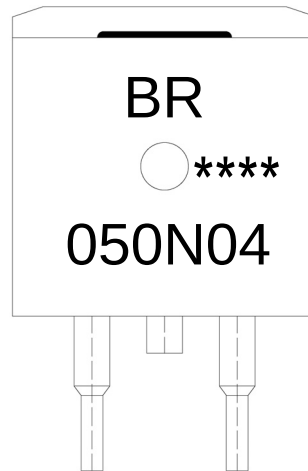
/ Package Dimensions



单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.30	4.70	E	9.00	9.40
B	1.00	1.40	L1	9.00	9.40
C	0.50	0.80	L3	9.00	9.40
D	4.30	4.70	b1	0.50	0.80
E	9.00	9.40	b2	0.50	0.80
L1	9.00	9.40	e1	0.50	0.80
L3	9.00	9.40	e2	0.50	0.80
b1	0.50	0.80			
b2	0.50	0.80			
e1	0.50	0.80			
e2	0.50	0.80			

/ Marking Instructions



BR

050N04

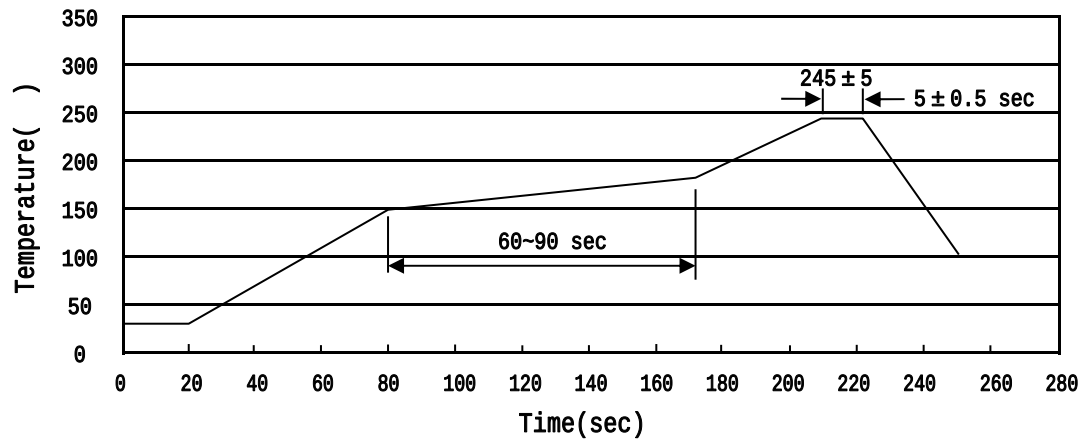
Note:

BR: Company Code

050N04: Product Type

****: Lot No. Code, code change with Lot No

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- | | | | | | |
|---|-------|-----|-----------|--------|---|
| 1 | 150 | 180 | 60 | 90sec; | 1.Preheating:150~180 , Time:60~90sec. |
| 2 | 245±5 | | 5±0.5sec; | | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-263	800	1	800	6	4,800	13 ×24	360×360×50	380×335×366

/ 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-263	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

/ Notices