

BRCS050N04BD

Rev.B Nov.-2022

/ Descriptions

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

/ Features

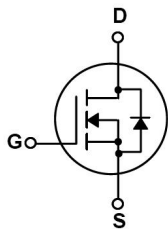
Ultra Low On-Resistance,fast switching,HF Product.

/ Applications

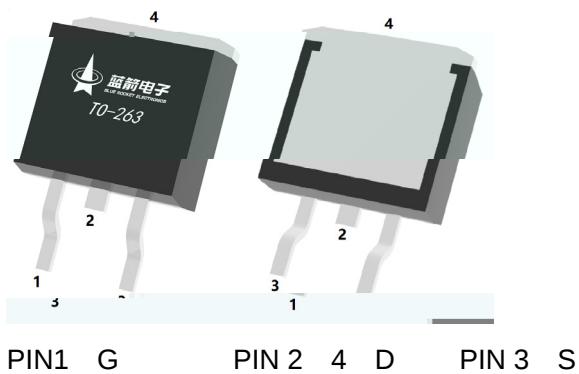
PFC

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



/ Marking

See Marking Instructions.

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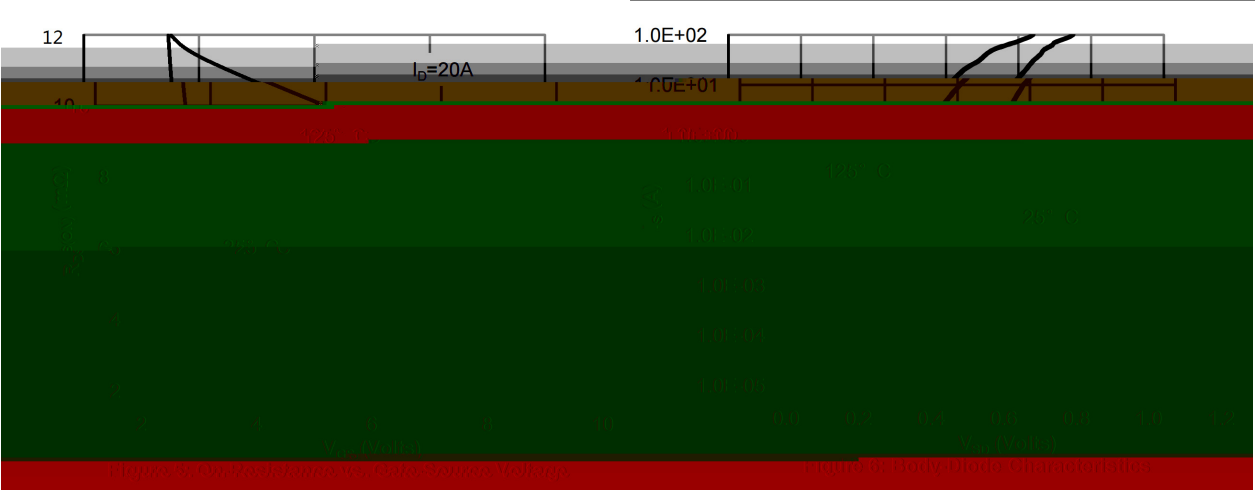
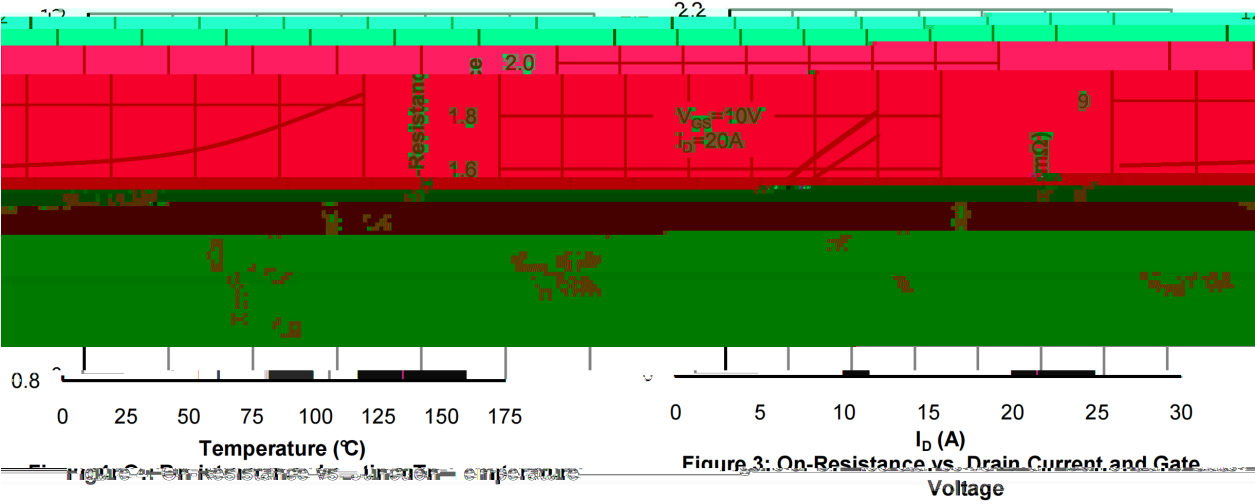
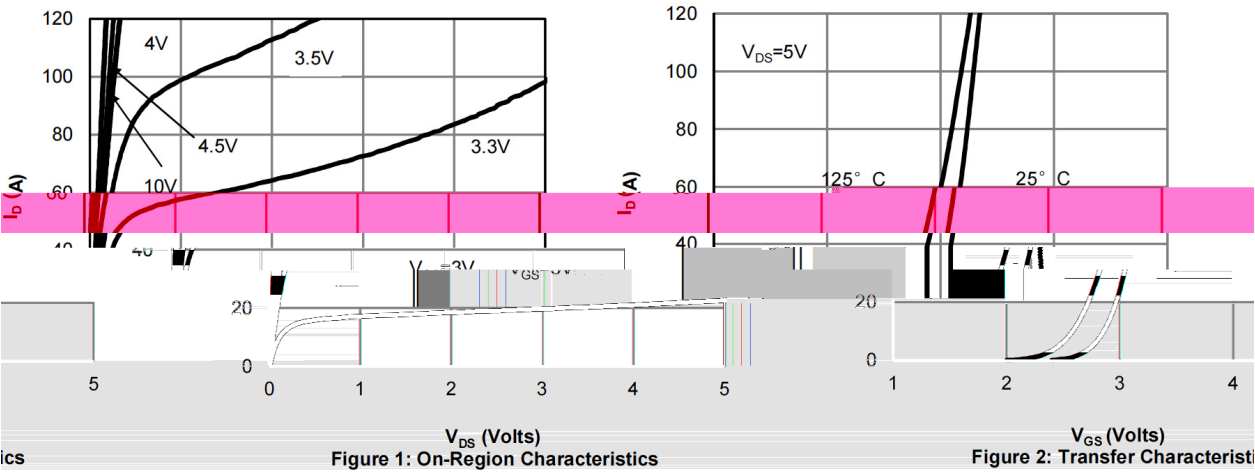
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	40	V
Drain Current		$I_D(T_C=25^\circ\text{C})$	196	A
Pulsed Drain Current		I_{DM}	500	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy($L=0.5\text{mH}$)		E_{AS}	561.8	mJ
Avalanche Current		I_{AS}	26.5	A
Total Power Dissipation		$P_D(T_C=25^\circ\text{C})$	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

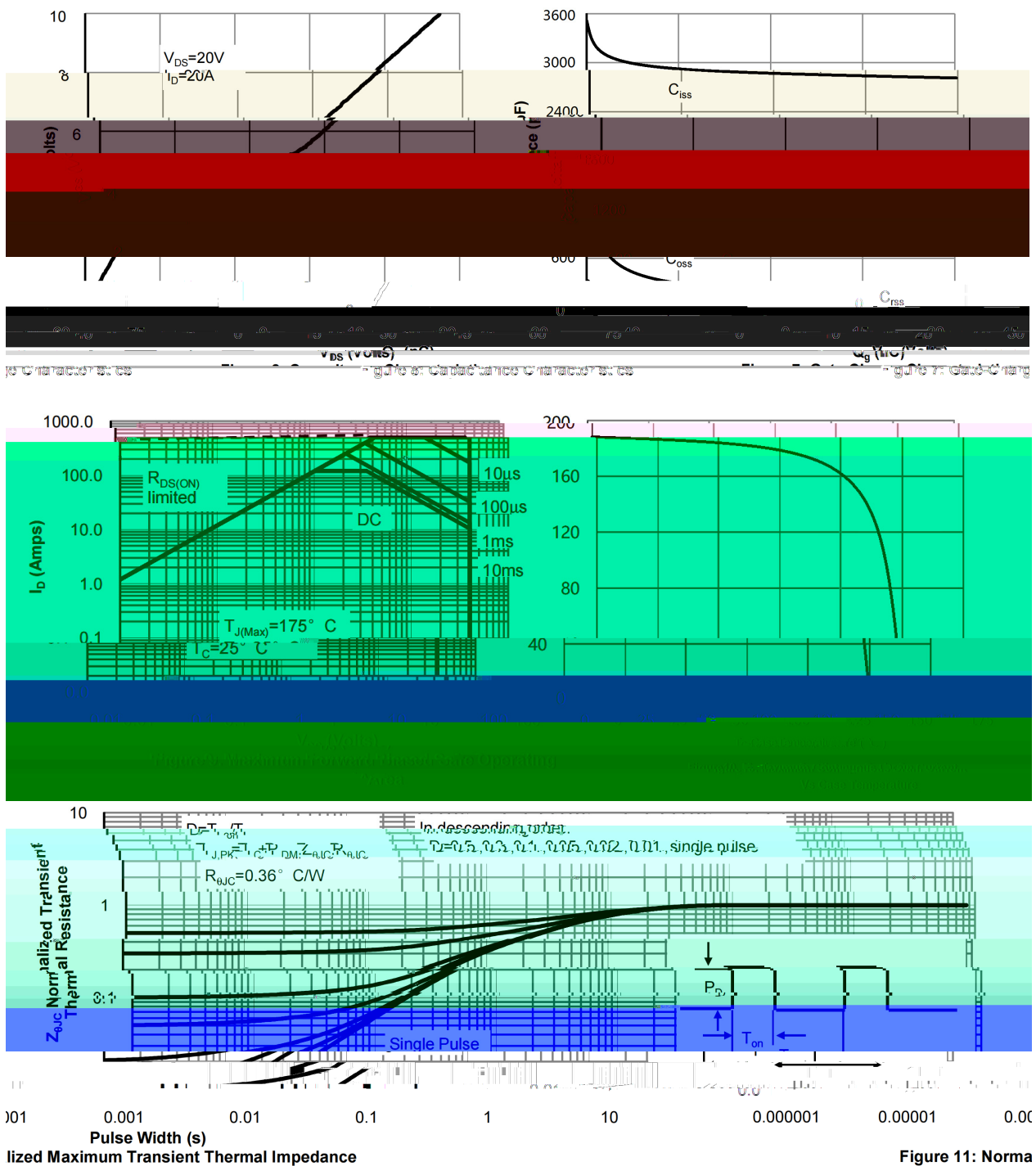
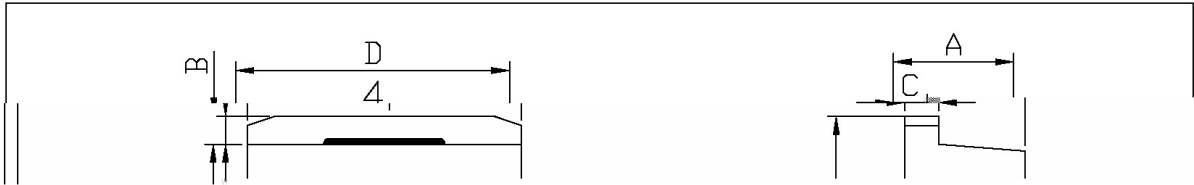


Figure 11: Normalized Maximum Transient Thermal Impedance

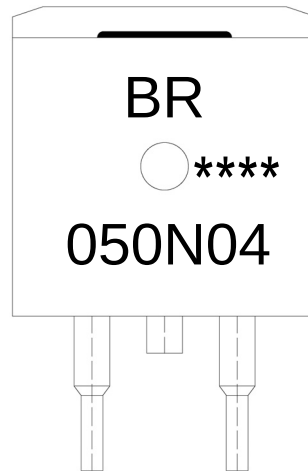
/ Package Dimensions



单位: mm						
Dimensions in Millimeters			Dimensions in Millimeters			
Symbol	Min	Max	Symbol	Min	Max	
A	4.30	4.70	E	9.00	9.40	
B	1.00	1.40	e1	2.34	2.74	
b	0.70	0.90	e2	4.88	5.28	
b1	1.15	1.35	J1	15.00	16.00	
b2	0.40	0.60	L2	2.24	2.84	
C	1.20	1.40	L3	1.20	1.60	
D	9.80	10.20				

T.P-263

/ **Marking Instructions**



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050N04

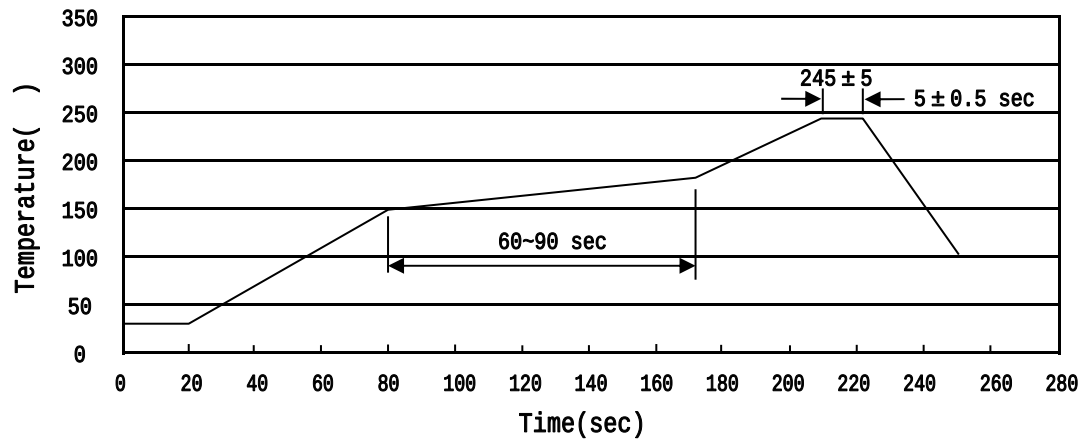
Note:

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