

BRCS050N04RA

Rev.A Nov.-2022

TO-220 .> // x N ?æ 3 « | o
N-CHANNEL MOSFET in a TO-220 Plastic Package.

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;RZXG 2U] 5T-8KYOYZGTIK,LGYZ Y]OZINOTM.

@ Parameter		Z Symbol	Rating	% y Unit
Drain-Source Voltage		V _{DSS}	40	V
Drain Current		I _D (T _c =25 °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 °C)	347	W
Junction and Storage Temperature Range		T _J ,T _{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	t 0 10s	R _{θJA}	15	- /W
	Steady-State		60	
Thermal Resistance-Junction to Case	Steady-State	R _{θJC}	0.36	

@ Parameter	Z Symbol	y i Ū [^] Test Conditions	´ 4 Min	¨ ¨ Typ	´ Ý Max	% y Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\text{ A}$	40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V$ $V_{GS}=0V$			1	A
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ V_{DS}				

④ì ×? d / Electrical Characteristics(Ta=25 ;)

@ Parameter	Z Symbol	y i Ū Test Conditions	´ 4 Min	´ ” Typ	´ Ý Max	% y 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 R _{GEN} =3		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

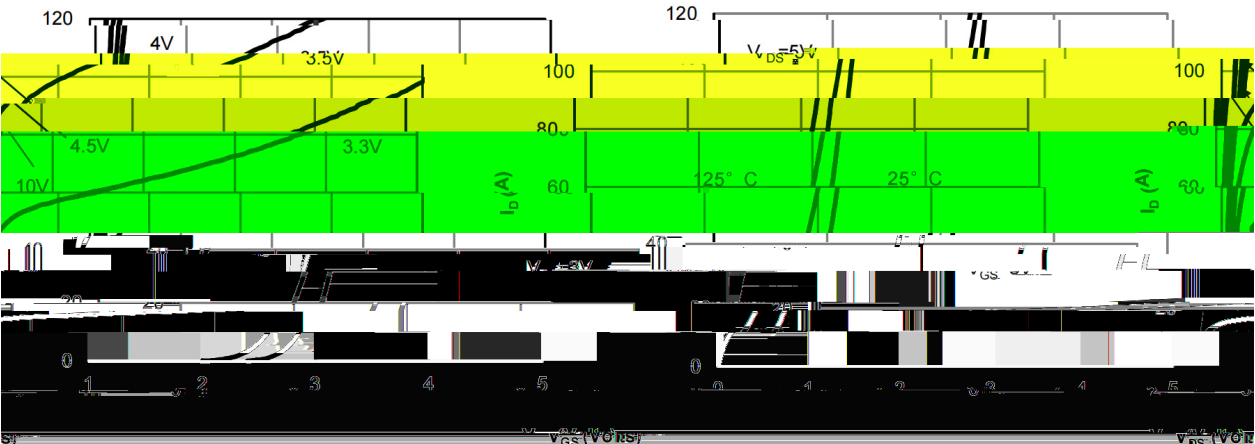
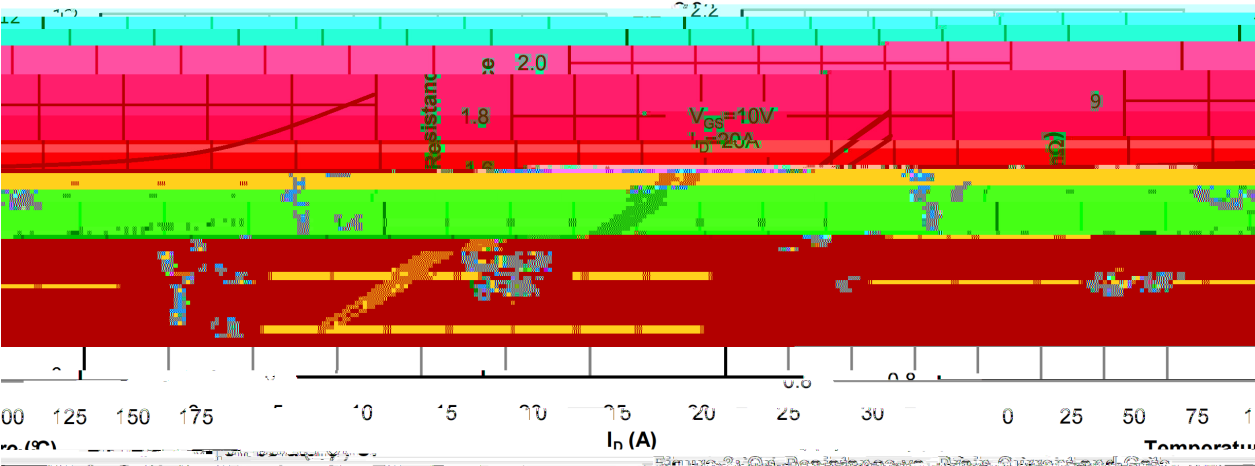
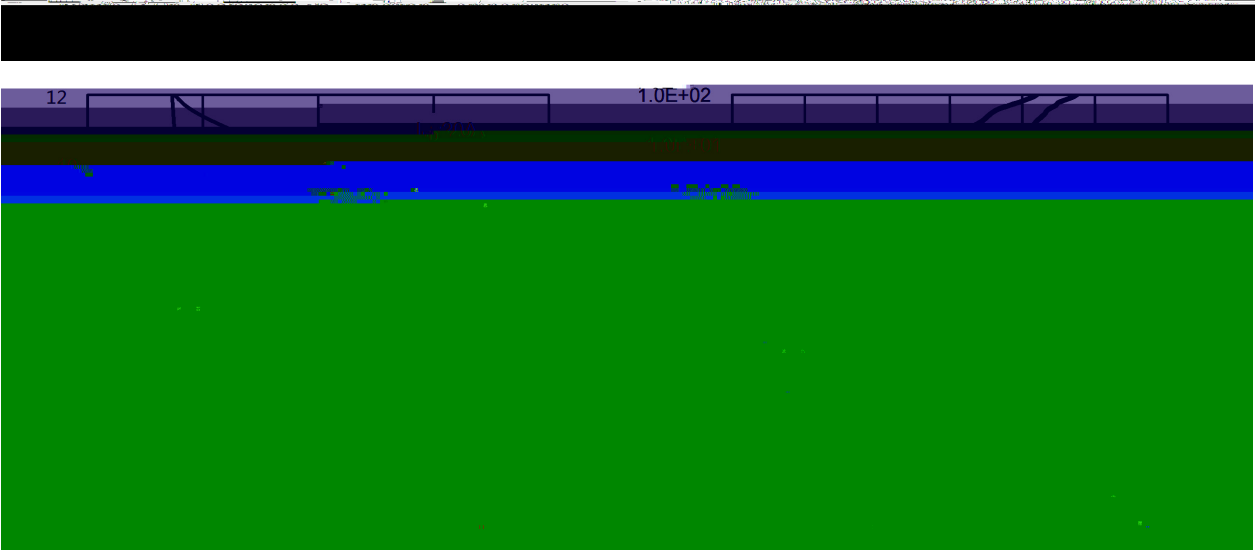
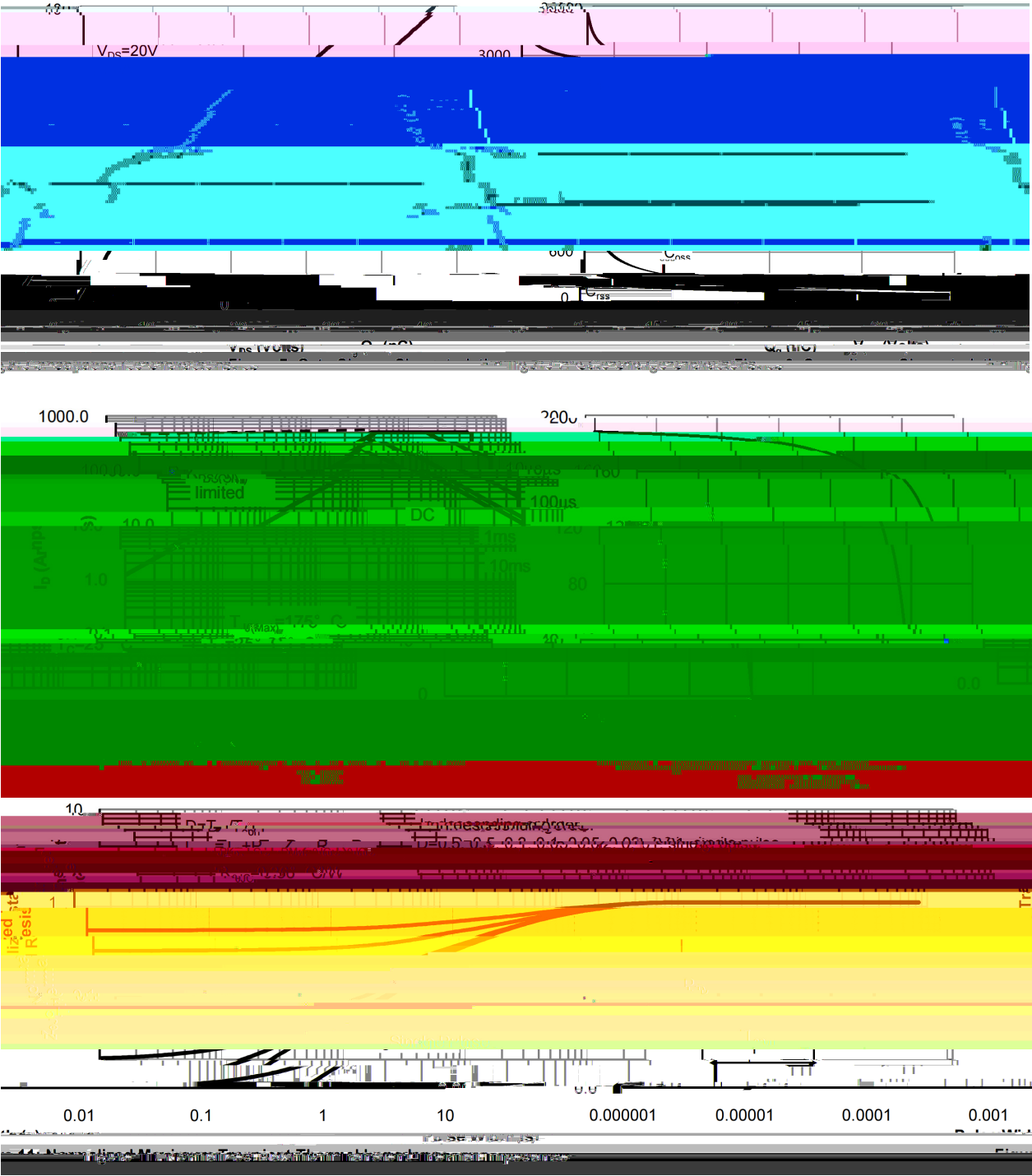


Figure 1: On-Region Characteristics Figure 2: Transfer Characteristics

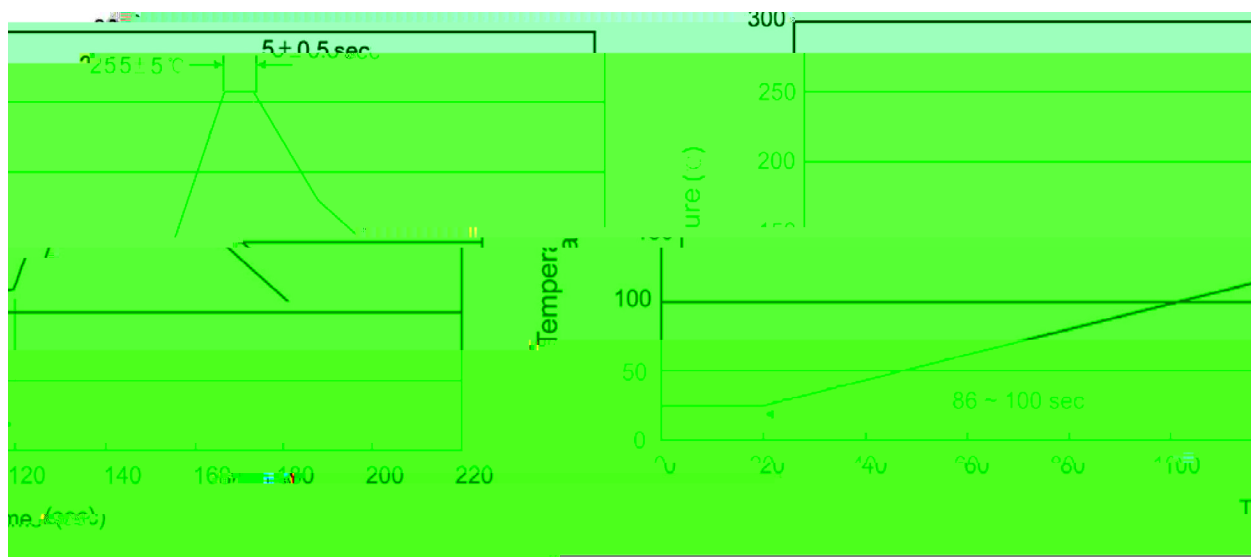


Electrical Characteristic Curve



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G PD t ¢ (x /) / Temperature Profile for Dip Soldering(Pb-Free)


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1o ~ % 25 %150 - k 60 %90sec;

2o Q 255 r5 - k 4 Ò 5 r0.5sec;

3o D N òi Ò , 2 %10 - /sec.

Note:

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

2.Peak Temp.:255 r5 - , Duration:5 r0.5sec.

3. Cooling Speed: 2~10 - /sec.

‘D /Cª p fl »] / Resistance to Soldering Heat Test Conditions

y 270 r5 -

y 10 r1 sec.

Temp.:270±5

Time:10±1 sec

G P Æ / Packaging SPEC.

^ x / BULK

Package Type 7>ß E	Units ;>ß fH					Dimension ;>ß p . (unit ~ mm³)		
	Units/Bag />`	Bags/Inner Box >`/-	Units/Inner Box /-	Inner Boxes/Outer Box - /1ç	Units/Outer Box /1ç	Bag >`	Inner Box -	Outer Box 1ç
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

ì x / TUBE

Package Type 7>ß E	Units ;>ß fH					Dimension ;>ß p . (unit ~ mm³)		
	Units/Tube / 1×	Tubes/Inner Box 1× /-	Units/Inner Box /-	Inner Boxes/Outer Box - /1ç	Units/Outer Box /1ç	Tube 1×	Inner Box -	Outer Box 1ç
TO-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

— y / Notices