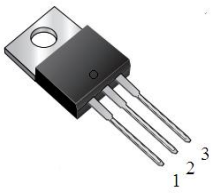
HBRA20200CT&HBRA20200FCT

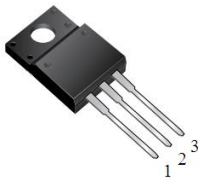
20.0AMPS. SCHOTTKY BARRIER RECTIFIERS

FEATURE

. High current capability
. Low forward voltage drop
. Low power loss, high efficiency
. High surge capability
. High temperature soldering guaranteed
260°C /10seconds, 0.25"(6.35mm)from case.



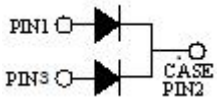
TO-220AB
HBRA20200CT



ITO-220AB
HBRA20200FCT

MECHANICAL DATA

. Case: Molded with UL-94 Class V-0 recognized
Flame Retardant Epoxy
. Mounting position: any



Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%

MAXIMUM RATINGS (T_C=25℃ unless otherwise noted)

Parameter	Symbol	HBRA20200CT&HBRA20200FCT	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	V
Maximum RMS Voltage	V_{RMS}	140	V
Maximum DC blocking Voltage	V_{DC}	200	V
Maximum Average Forward Rectified Current *Per Leg* at T_C =125°C *Total device*	$I_{F(AV)}$	10.0 20.0	A
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC method) *Per Leg*	I_{FSM}	120.0	A
Typical Junction Capacitance (Note 1)	C_J	90	pF
Operation Junction Temperature and Storage Temperature	T_J, T_{STG}	-55 to +175	°C

ELECTRICAL CHARACTERISTICS-(per leg) (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test conditions		Typ	Max	Units
Forward voltage drop	V_F	T_J=25°C	I_F=5A	0.80	----	V
			I_F=10A	0.86	0.95	
		T_J=125°C	I_F=5A	0.68	----	
			I_F=10A	0.74	0.82	
Reverse leakage current	I_R	T_J=25°C	V_R=200V	----	0.02	mA
		T_J=125°C	V_R=200V	----	5	

THERMAL CHARACTERISTICS(T_C=25℃ unless otherwise noted)

Parameter	Symbol	HBRA20200CT	HBRA20200FCT	Units
Typical Thermal Resistance (Note 2)	$R_{(JC)}$	2.0	3.0	℃/W

Notes:

1. Measured at 1.0 MHz and applied reverse voltage of 4.0Vdc
2. Thermal Resistance from Junction to Case

RATING AND CHARACTERISTIC CURVES

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

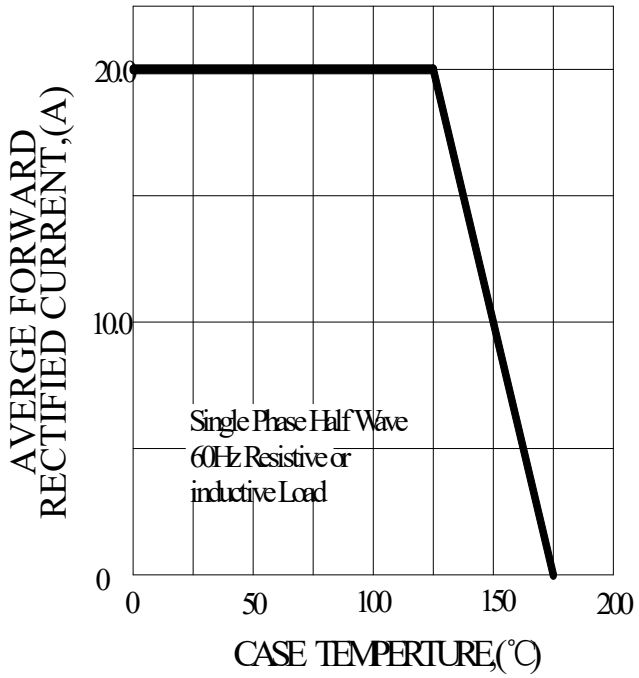


FIG.2-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

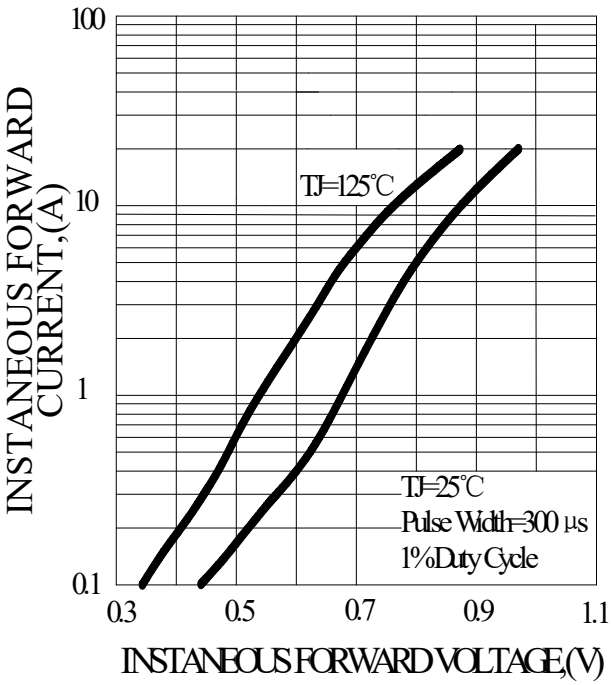


FIG.3-MAXIMUN NON-REPEITITIVE FORWARD SURGE CURRENT

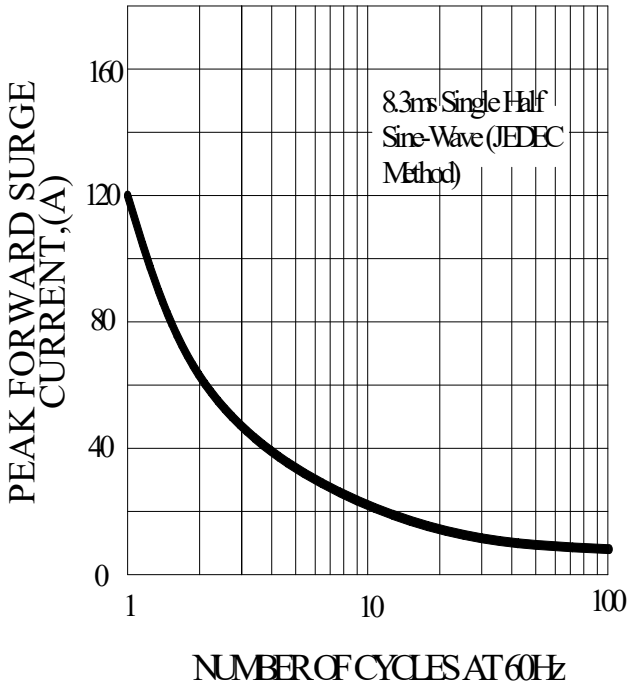
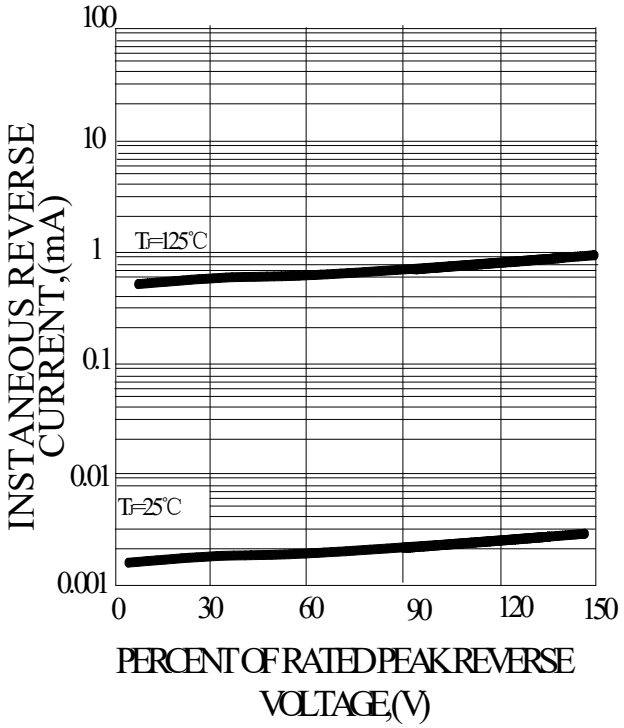
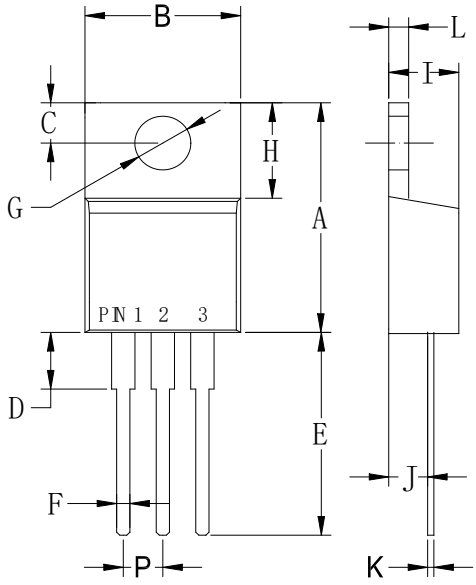


FIG.4-TYPICAL REVERSE CHARACTERISTICS



PACKAGE OUTLINE DIMENSIONS

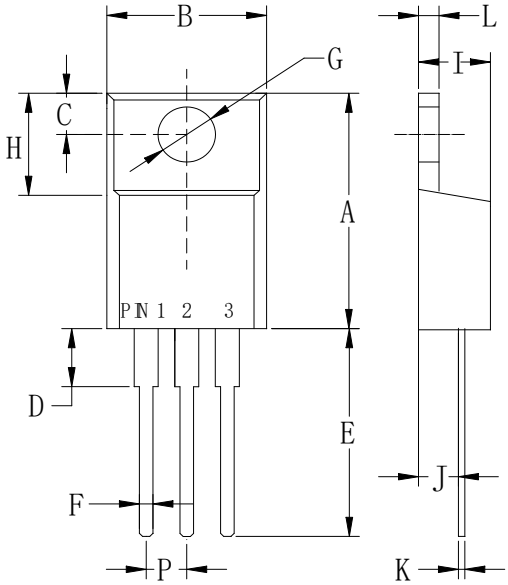
TO-220AB



TO-220AB		
Dim	Min	Max
A	.573(14.55)	.603(15.32)
B	——	.412(10.5)
C	.103(2.62)	.113(2.87)
D	.140(3.56)	.160(4.06)
E	.510(13.0)	.560(14.3)
F	.027(0.68)	.037(0.94)
G	.148(3.74)	.154(3.91)
H	.230(5.84)	.270(6.86)
I	.175(4.44)	.185(4.86)
J	.100(2.54)	.110(2.79)
K	.014(0.35)	.025(0.64)
L	.045(1.14)	.055(1.40)
P	.095(2.41)	.105(2.67)

Dimensions in inches and (millimeters)

ITO-220AB

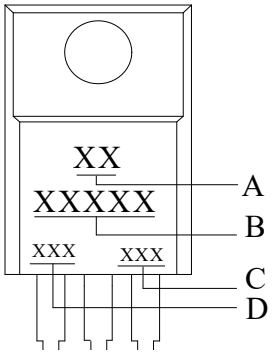


ITO-220AB		
Dim	Min	Max
A	.571(14.5)	.610(15.5)
B	.383(9.72)	.406(10.3)
C	.110(2.80)	.126(3.20)
D	.133(3.38)	.162(4.10)
E	.512(13.0)	.551(14.0)
F	.028(0.70)	.035(0.90)
G	.114(2.90)	.138(3.50)
H	.268(6.80)	.291(7.40)
I	.162(4.10)	.185(4.70)
J	.102(2.60)	.110(2.80)
K	.018(0.45)	.026(0.65)
L	.097(2.46)	.113(2.86)
P	.890(2.25)	.113(2.85)

Dimensions in inches and (millimeters)

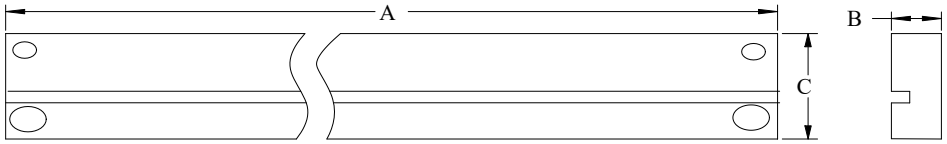
Marking and packaging illustration

1、Marking

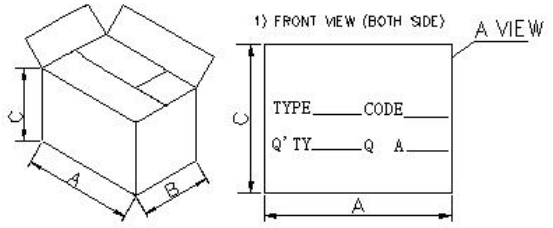


SYMBOL	Explanation
A	Trademark
B	Product Name
C	Date Code
D	Product Information

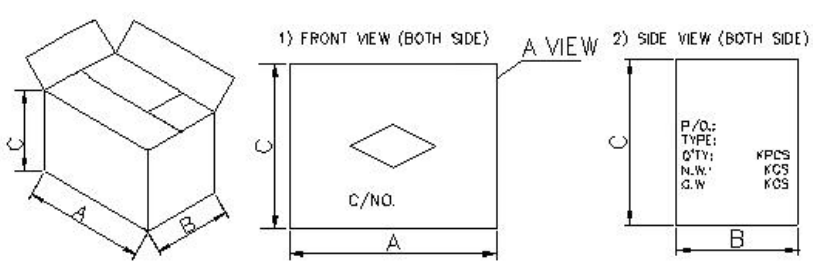
2、Packaging



Tube



Inside Box



Outside Box

类别	A（mm）	B（mm）	C（mm）
TO-220 Tube(50EA per tube)	530±5	7±0.8	33±1
TO-220 Inside Box（1K per box）	542±5	82±2	78±1
TO-220 outside Box（6K per box）	555±5	285±5	245±5

重庆平伟实业股份有限公司
CHONGQING PINGWEI ENTERPRISE CO.,LTD

报告

测试报告

		日期	2019/11/14
		客户	创维
		批号	
产品名称	HBRA20200FCT	记录	**王航**
产品商标	PY	审核	**王强**

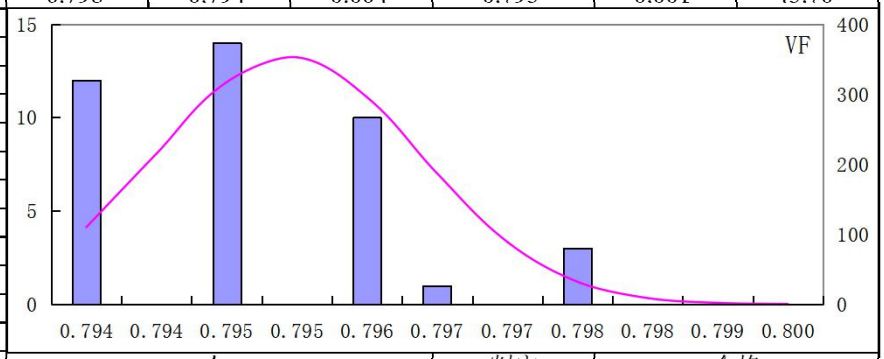
电参数测试

测试条件	IF=10A	VR=200V	IR=0.1mA
合格标准	V_F(V) <= 0.950	I_R(uA) <= 20.00	V_R (V) >= 200
1	0.795	0.049	242.9
2	0.798	0.053	246.5
3	0.798	0.041	246.3
4	0.794	0.047	239.2
5	0.794	0.043	235.1
6	0.794	0.050	237.9
7	0.794	0.043	238.4
8	0.794	0.051	238.4
9	0.794	0.044	238.2
10	0.794	0.041	238.6
11	0.794	0.040	238.6
12	0.794	0.047	239.8
13	0.795	0.048	239.3
14	0.794	0.038	239.9
15	0.794	0.038	240.4
16	0.795	0.050	241.6
17	0.794	0.046	240.5
18	0.797	0.050	244.2
19	0.798	0.048	247.9
20	0.795	0.044	241.1
21	0.795	0.054	240.9
22	0.795	0.043	242.5
23	0.796	0.043	241.9
24	0.795	0.043	241.8
25	0.796	0.051	242.0
26	0.796	0.046	242.3
27	0.796	0.049	242.5
28	0.796	0.051	241.1
29	0.796	0.047	241.8
30	0.795	0.036	240.4
31	0.795	0.048	241.3
32	0.796	0.051	240.7
33	0.795	0.041	240.2
34	0.796	0.038	241.0
35	0.796	0.043	241.0
36	0.796	0.043	240.6
37	0.795	0.037	241.0
38	0.795	0.045	240.5
39	0.795	0.036	240.4
40	0.795	0.038	242.4

直方图分布

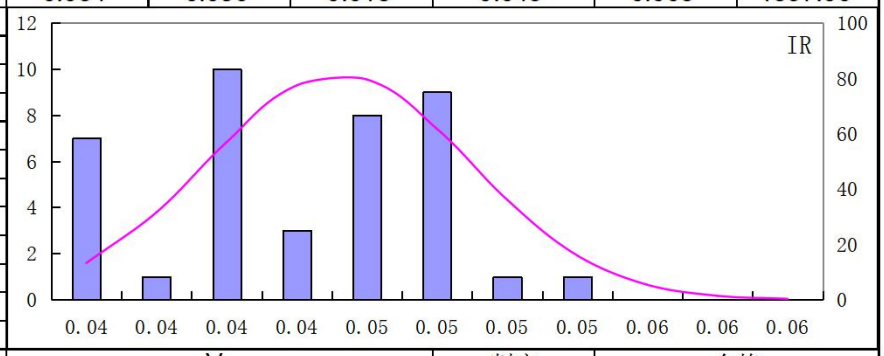
V_F

判定	合格				
MAX	MIN	R	AVG	σ	CPK
0.798	0.794	0.004	0.795	0.001	45.70



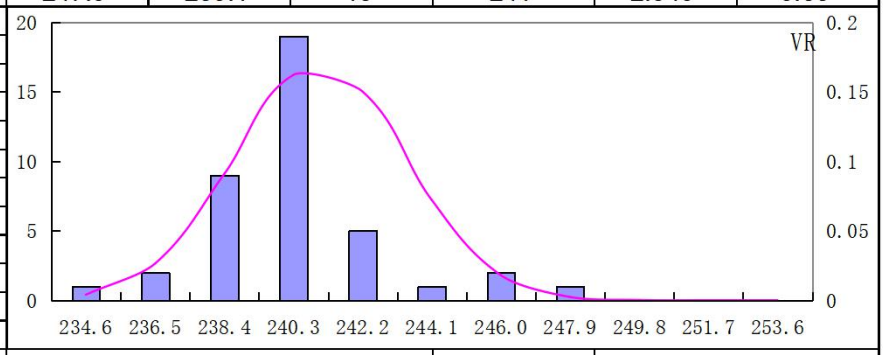
I_R

判定	合格				
MAX	MIN	R	AVG	σ	CPK
0.054	0.036	0.018	0.045	0.005	1357.00



V_R

判定	合格				
MAX	MIN	R	AVG	σ	CPK
247.9	235.1	13	241	2.345	5.83



可靠性认证要求

序号	试验项目	参考标准	试验条件/方法	每批次样本	Duration/试验判据
1	高压蒸煮	JESD22-102	121±2℃/15PSI/100%RH/48（-0，+5）h	22	满足参数规格，0收1退
2	温度冲击	JESD22-A106GB/T2423.22	TA=-55℃，TB =150℃/高温或低温端暴露时间t1=30min/100次（空气-空气）	22	满足参数规格，0收1退
3	耐焊接热	JESD22-B106JESD22-A111	插件270℃/10s	22	满足参数规格，0收1退
4	高温贮存	JESD22-A103	TA=150℃/168h	22	满足参数规格，0收1退
5	低温贮存	JESD22-A103	TA=-55℃/168h	22	满足参数规格，0收1退
6	高温反偏	MIL-STD-750	80%VB/125±2℃/168±16h	22	满足参数规格，0收1退
7	高温高湿	JESD22-A101	85℃/85%RH/168h	22	满足参数规格，0收1退
8	正向浪涌	MIL-STD-750	8.3ms single half sine-wave@IFSM=120A	22	满足参数规格，0收1退
9	可焊锡	JESD22-B102GB/T2423.22	蒸汽预处理93（-5，+3）℃，8±0.25h→245℃，5s	22	50倍显微镜观察 上锡面积≥95%
10	高温正向	JESD22-A106	TA= 55℃/Tjmax（调整Io最大为IF且使Tj趋近于Tjmax但不超）/168h	22	满足参数规格，0收1退
11	温度循环	JESD22-A104	TA= -65℃，TB = 150℃/温度变化速率v=10℃/min /100次	22	满足参数规格，0收1退

重庆平伟实业股份有限公司 有限公司
CHONGQING PINGWEI ENTERPRISE CO.,LTD PRISE CO.,LTD

CHONGQING PINGWEI ENTERPRISE CO.,LTD

Chemical Composition Of Diode(ITO-220AB)

Weight: 1432.830 mg/pcs

Make up of material	Chemical Composition	CAS NO.	Averager (weight%)	weight of part (%)	Substance weight (mg)	Name of supplier
Lead Wire	Copper(Cu)	7440-50-8	99.98	63.2363%	906.0687500	NINGBO HUALONG ELECTRONCS CO,LTD
	Iron(Fe)	7439-89-6	0.015	0.0095%	0.1359375	
	Phosphoru(P)	7723-14-0	0.005	0.0032%	0.0453125	
Chip	Silicon（Si）	7440-21-3	95.5937	0.2982%	4.27303839	JIANGYIN XINSHUN MICROELECTRONIC CO;LTD
	Aluminum(Al)	7429-90-5	2.4242	0.0076%	0.10836174	
	Copper (Cu)	7440-50-8	0.0067	0.00002%	0.00029949	
	Platinum(Pt)	7440-0 6-4	0.0321	0.0001%	0.00143487	
	Titanium（Ti）	7440-32-6	0.1012	0.0003%	0.00452364	
	Nickel (Ni)	7440-02-0	0.2664	0.0008%	0.01190808	
	Silver (Ag)	7440-22-4	1.5757	0.0049%	0.07043379	
Solding	Lead(Pb)	7439-92-1	95.5	0.2206%	3.1610500	WUXI LIHONG ELECTRONI MATERIALS CO;LTD
	Tin(Sn)	7440-31-5	2	0.0046%	0.0662000	
	Silver(Ag)	7440-22-4	2.5	0.0058%	0.0827500	
Aluminum wire	Aluminum(Al)	7429-90-5	99.995	2.2535%	32.2883855	TANAKA ELECTRONICS SINGAPORE PTE LTD
	Nickel (Ni)	7440-02-0	0.005	0.00011%	0.0016145	
Solder plating	Tin(Sn)	7440-31-5	99.99	2.3692%	33.9466050	YUNNAN TIN CO.,LTD
	Lead(Pb)	7439-92-1	0.0035	0.0001%	0.0011883	
	Iron(Fe)	7439-89-6	0.0045	0.0001%	0.0015278	
	Copper(Cu)	7440-50-8	0.002	0.0000%	0.0006790	
Encapsulation	Silicon dioxide	14808-60-7	64.5	20.3724%	291.9012000	CHANG CHUN SB (CHANG SHU)CO.,LTD
	Epoxy resin	29690-82-2	30	9.4755%	135.7680000	
	Phenolic Resin	9003-35-4	5	1.5793%	22.6280000	
	Carbon black	1333-86-4	0.5	0.1579%	2.2628000	

Note : Pb used in high melting temperature type solders is exempted from RoHS.