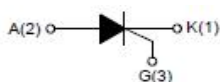




Continental Device India Pvt. Limited
An IATF 16949, ISO9001 and ISO 14001 Certified Company



20A SCRs



BT152-600/800
BT152-600R/800R

TO-220B
Plastic Package
RoHS compliant

DESCRIPTION:

With high ability to withstand the shock loading of large current, BT152 Series SCRs provide high dv/dt rate with strong resistance to electromagnetic interference. From all three terminals to external heatsink, BT152 series SCRs provides a rated insulation voltage of 2000 VRMS, complying with UL standards (File ref: E252906). Packages are RoHS compliant (2011/65/EU)

FEATURES

Symbol	Value	Unit
V_{DRM}/V_{RRM}	600/800	V
$I_{T(RMS)}$	20	A
I_{GT}	≤ 15	mA

APPLICATIONS:

Its application is in solid state relay, motorcycle, power charger, T-tools etc

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage($T_j=25^\circ\text{C}$)	V_{DRM}	600/800	V
Repetitive peak reverse voltage($T_j=25^\circ\text{C}$)	V_{RRM}	600/800	V
RMS on-state current	$I_{T(RMS)}$	20	A
$T_C=100^\circ\text{C}$			
$T_C=120^\circ\text{C}$			
Non repetitive surge peak on-state current ($t_p=10\text{ms}$)	I_{TSM}	200	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	200	A ² s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	50	A/ μs
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	5	W
Operating and Storage Temperature Range	T_J, T_{STG}	-40 to +150	$^\circ\text{C}$

BT152-600/800R
Rev0 14062019EBJ



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ELECTRICAL CHARACTERISTICS (Ta=25°C Unless otherwise specified)

Parameter	Symbol	Test Conditions	Value			Unit
			Min	Typ.	Max.	
Gate Trigger Current	I_{GT}	$V_D=12V$ $R_L=33\Omega$	--	--	25	mA
Gate Trigger Voltage	V_{GT}		--	--	1.3	V
Non-triggering gate voltage	V_{GD}	$V_D=V_{DRM}$ $T_j=150^\circ C$ $R_L=3.3K\Omega$	0.2	--	--	V
Latching Current	I_L	$I_G=1.2I_{GT}$	--	--	70	mA
Holding Current	I_H	$I_T=500mA$	--	--	60	mA
Critical Rate of Rise of Off-State Vo	dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=150^\circ C$	200	--	--	V/ μs

STATIC CHARACTERISTICS

Peak on-state voltage drop	$T_j=25^\circ C$	V_{TM}	$I_{TM}=40A$ $t_p=380\mu s$	--	--	1.55	V
Threshold voltage	$T_j=150^\circ C$	V_{T0}		--	--	0.80	V
Dynamic resistance	$T_j=150^\circ C$	R_d		--	--	20	Ω
Maximum forward leakage current	$T_j=25^\circ C$	I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	--	--	5	μA
Maximum reverse leakage current	$T_j=150^\circ C$	I_{RRM}		--	--	4	mA

THERMAL RESISTANCES

Parameter	Symbol	Value	Unit
Junction to case(AC)	$R_{th(j-c)}$	1.05	$^\circ C/W$



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TYPICAL CHERESTERISTIC CURVES

FIG.1 Maximum power dissipation versus RMS on-state current

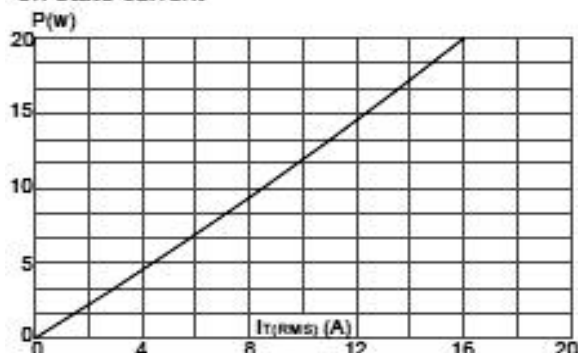


FIG.3: Surge peak on-state current versus number of cycles

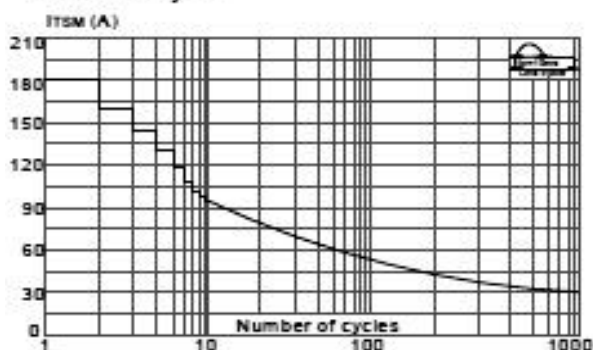


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of $I^2 t$ ($di/dt < 50A/\mu s$)

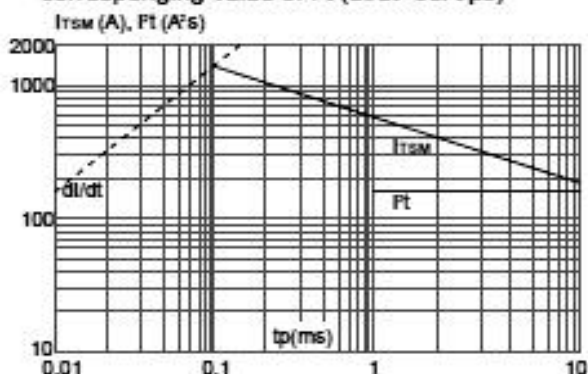


FIG.2: RMS on-state current versus case temperature

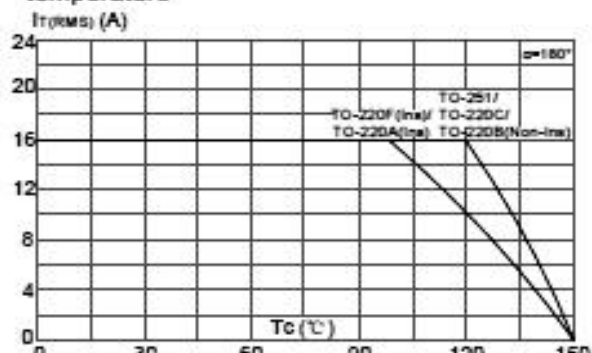


FIG.4: On-state characteristics (maximum values)

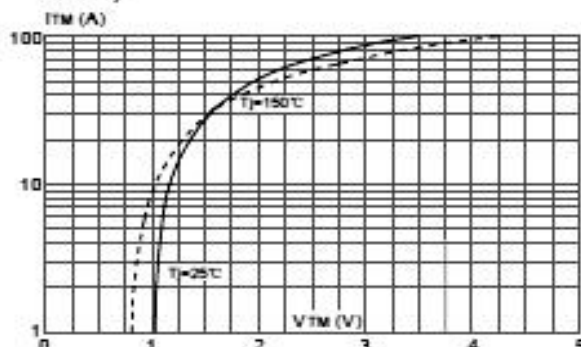
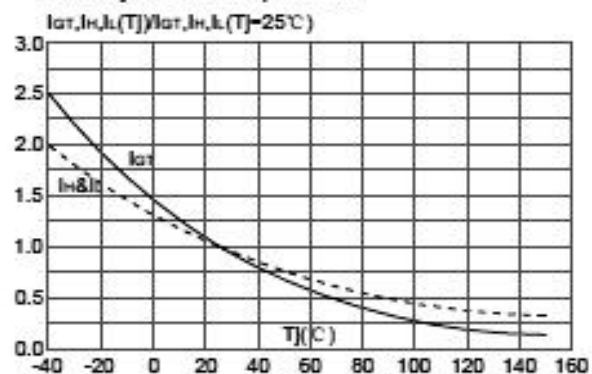


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



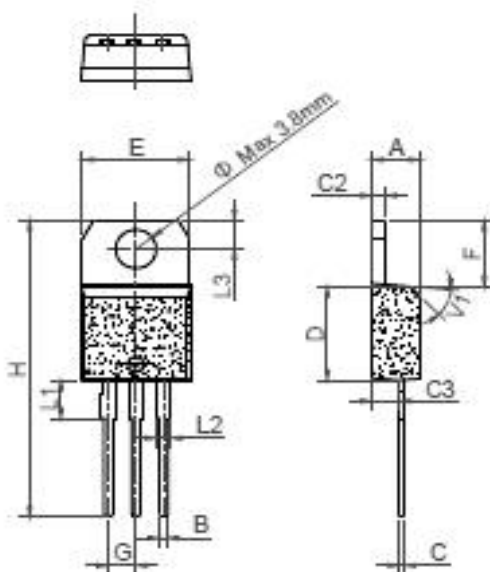


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Package Details

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

Package Details

Package	Outline	Tube (Pcs)	Inner box (PCS)	Per Carton
TO-220B	TUBE	50	1000	8000

Note: For AECQ compliant products, please suffix -AH in the part number while ordering



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Recommended Product Storage Environment for Diode and Transistors

This storage environment assumes that the Diodes and transistors are packed properly inside the original packing supplied by CDIL.

- Temperature 5 °C to 30 °C
- Humidity between 40 to 70 %RH
- Air should be clean.
- Avoid harmful gas or dust.
- Avoid outdoor exposure or storage in areas subject to rain or water spraying .
- Avoid storage in areas subject to corrosive gas or dust. Product shall not be stored in areas exposed to direct sunlight.
- Avoid rapid change of temperature.
- Avoid condensation.
- Mechanical stress such as vibration and impact shall be avoided.
- The product shall not be placed directly on the floor.
- The product shall be stored on a plane area. They should not be turned upside down. They should not be placed against the wall.

Shelf Life of CDIL Products

The shelf life of products is the period from product manufacture to shipment to customers. The product can be unconditionally shipped within this period. The period is defined as 2 years.

If products are stored longer than the shelf life of 2 years, the products shall be subject to **Floor Life of CDIL Products and MSL Level**

The product When the products are opened from the original packing, the floor life will start. For this subject to the following JEDEC table may be referred:

JEDEC MSL Level		
Level	Time	Condition
1	Unlimited	$\leq 30^{\circ}\text{C} / 85\% \text{ RH}$
2	1 Year	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
2a	4 Weeks	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
3	168 Hours	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
4	72 Hours	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
5	48 Hours	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
5a	24 Hours	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
6	Time on Label(TOL)	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$

Figure 1 Floor Life according to JEDEC MSL Level



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Customer Notes

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



CDIL is a registered Trademark of
Continental Device India Pvt.Limited
C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone +91-11-2579 6150, 4141 1112 Fax +91-11-2579 5290, 4141 1119
email@cdil.com www.cdil.com
CIN No. - U32109DL1964PTC004291