

BT152-F

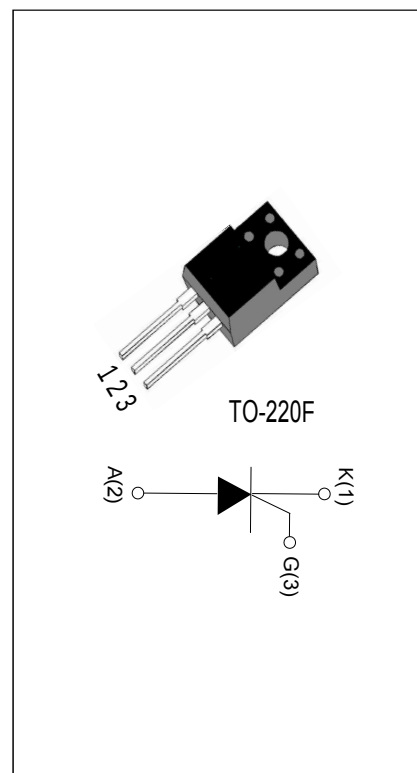
MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	650	V

DESCRIPTION:

With high ability to withstand the shock loading of large current, BT152-F of silicon controlled rectifiers provides high dV/dt rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. From all three terminals to external heatsink.

Package TO-220F is RoHS compliant.



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	°C
Operating junction temperature range	T_j	-40-125	°C
Repetitive peak off-state voltage ($T_j=25^{\circ}\text{C}$)	V_{DRM}	650	V
Repetitive peak reverse voltage ($T_j=25^{\circ}\text{C}$)	V_{RRM}	650	V
RMS on-state current ($T_c \leq 80^{\circ}\text{C}$)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^{\circ}\text{C}$)	I_{TSM}	120	A
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^{\circ}\text{C}$)	I^2t	144	A^2s
Critical rate of rise of on-state current ($T_j=125^{\circ}\text{C}$)	di/dt	50	$\text{A}/\mu\text{s}$
Peak gate current ($t_p=20\mu\text{s}$, $T_j=125^{\circ}\text{C}$)	I_{GM}	4	A
Average gate power dissipation ($T_j=125^{\circ}\text{C}$)	$P_{G(AV)}$	1	W

ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Test Condition	Value		Unit
I_{GT}	$V_D=12\text{V}$ $R_L=100\Omega$	MAX.	15	mA
V_{GT}		MAX.	1.5	V
V_{GD}	$V_D=V_{DRM}$ $T_J=125^{\circ}\text{C}$ $R_L=100\Omega$	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	MAX.	40	mA
			60	
I_H	$I_T=500\text{mA}$	MAX.	30	mA
dV/dt	$V_D=2/3V_{DRM}$ $T_J=125^{\circ}\text{C}$	MIN.	500	V/ μs

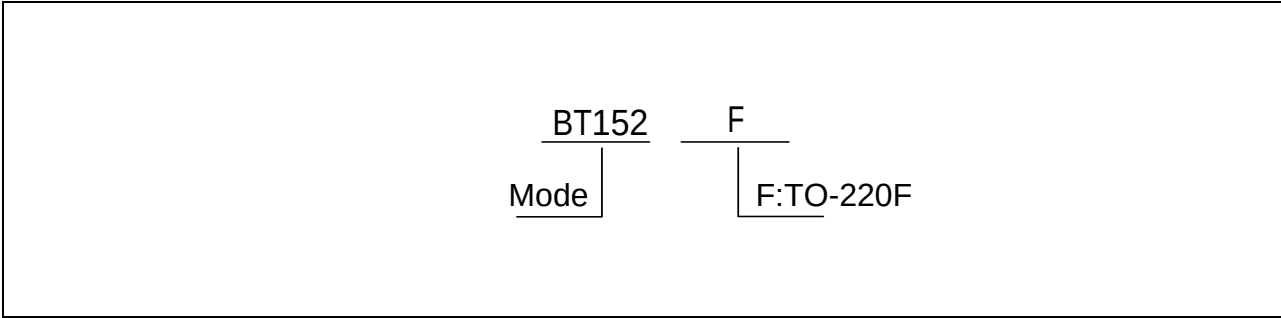
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=30\text{A}$ $t_p=380\mu\text{s}$	$T_J=25^{\circ}\text{C}$	1.50	V
V_{TO}	Threshold voltage	$T_J=125^{\circ}\text{C}$	0.86	V
R_D	Dynamic resistance	$T_J=125^{\circ}\text{C}$	36.6	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_J=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_J=125^{\circ}\text{C}$	1	mA

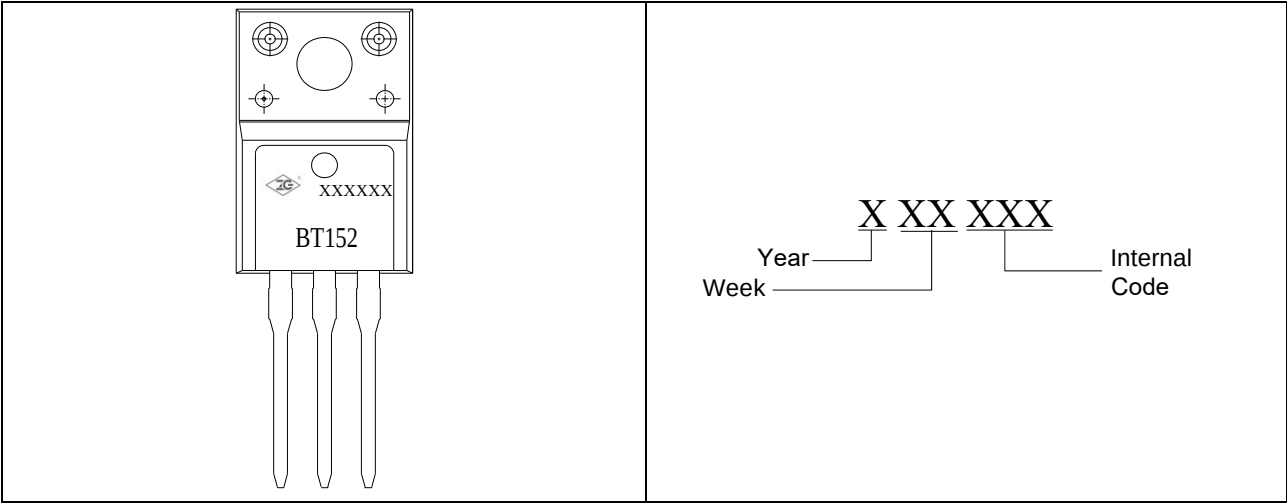
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.05	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION



MARKING



ORDERING INFORMATION

Order code	Voltage V _{DRM} /V _{RRM} (V)	Package	Base qty. (pcs)	Delivery mode
BT152-F	650	TO-220F	50	Tube

Technical drawing of the TO-220F package showing front, side, and top views with dimensions.

Front View Dimensions:

- E:** Width of the main body.
- H:** Total height of the package.
- L2:** Height of the upper section.
- L3:** Height of the lower section.
- L1:** Height of the lead section.
- L4:** Total height of the lead section.
- G:** Width of the lead section.
- B:** Width of the base of the lead section.

Side View Dimensions:

- A:** Width of the main body.
- C2:** Width of the upper section.
- F:** Height of the upper section.
- D:** Height of the lower section.
- C3:** Width of the lower section.
- C:** Width of the lead section.

Top View Dimensions:

- Ø 3.05-3.25mm:** Diameter of the mounting holes.

TO-220F

Ref.	Dimensions		
	Millimeters		
	Min.	Typ.	Max.
A	4.50	4.70	4.90
B	0.60	0.80	1.00
C	0.40	0.50	0.60
C2	2.35	2.55	2.75
C3	2.15	2.35	2.55
D	8.97	9.17	9.37
E	9.96	10.16	10.36
F	6.48	6.68	6.88
G	2.44	2.54	2.64
H	28.65	28.95	29.25
L1	1.10	1.30	1.50
L2	3.15	3.30	3.45
L3	2.90	3.00	3.10
L4	9.90	10.10	10.30

Technical drawing of a rectangular component with dimensions and labels. The drawing includes a top view and a side view.

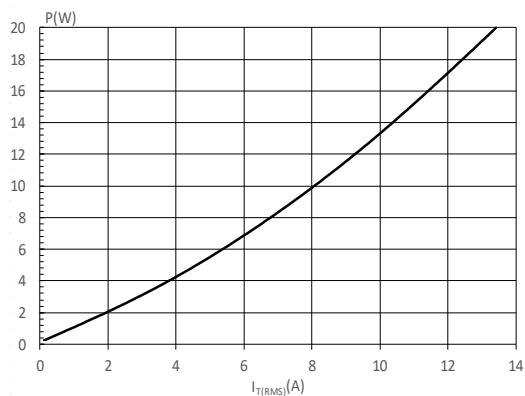
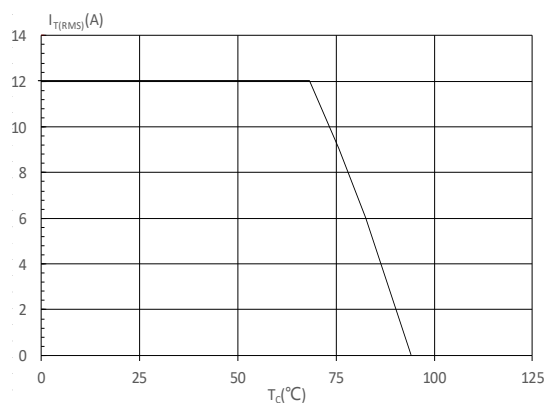
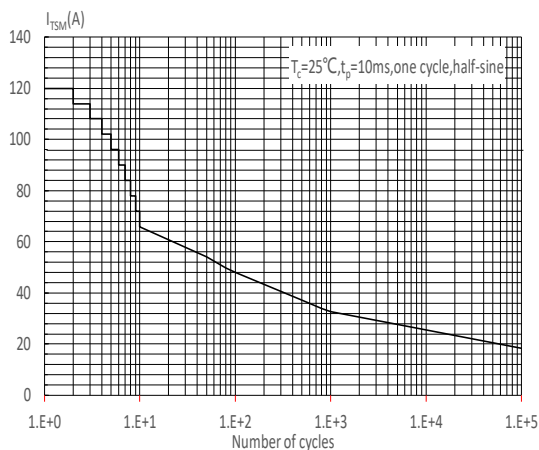
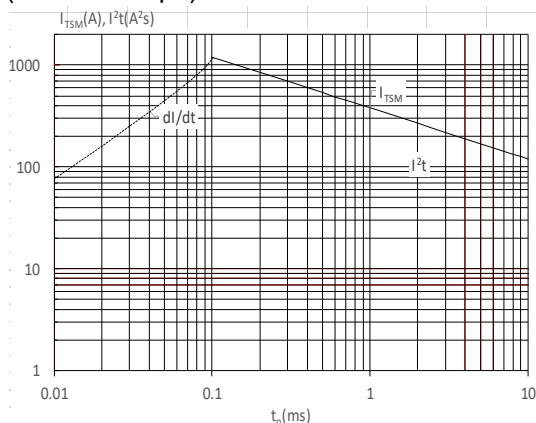
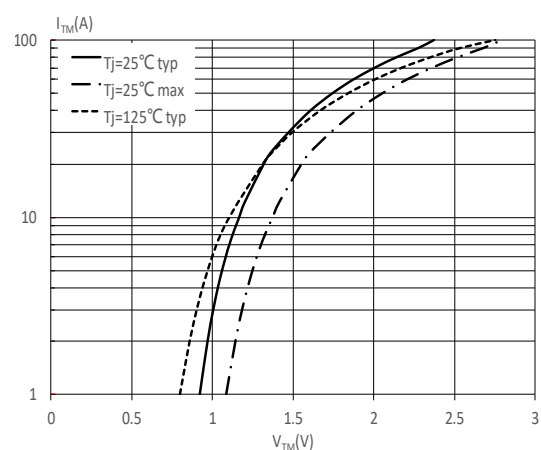
Top View Dimensions:

- Overall width: 530 ± 1
- Overall height: 60
- Left side features:
 - Two circular holes: $4 \times \phi 3$ and $4 \times \phi 4.5$
 - Distance between holes: 4.5 ± 0.2
 - Distance from left edge to first hole: 4.5 ± 0.2
 - Distance from left edge to second hole: 4.5 ± 0.2
- Right side features:
 - Distance from right edge to first hole: 5.0 ± 0.2
 - Distance from right edge to second hole: 4.5 ± 0.2
 - Distance between holes: 7.5 ± 0.2
 - Distance from right edge to center of component: 45
- Internal features:
 - Distance from left edge to center of component: 4.0
 - Distance from center of component to right edge: 30
 - Label: **ANTISTATIC**
 - Label: **RoHS**

Side View Dimensions:

- Overall height: 32.8 ± 0.2
- Top flange height: 7.0 ± 0.2
- Bottom flange height: 5
- Distance from bottom flange to center of component: 17.0 ± 0.2
- Distance from bottom flange to center of component: 2.9 ± 0.1
- Label: **T = 0.5 ± 0.1**

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220F	TUBE	50	1,000	5,000

FIG.1 Maximum power dissipation versus RMS on-state current**FIG.2:** RMS on-state current versus case temperature**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 $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)**FIG.4:** On-state characteristics**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature