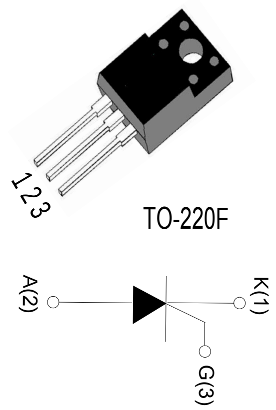
BT152-650R

MAIN FEATURES

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



DESCRIPTION:

With high ability to withstand the shock loading of large current, BT152-650R 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	℃
Operating junction temperature range	T_j	-40-125	℃
Repetitive peak off-state voltage (T_j=25℃)	V_{DRM}	650	V
Repetitive peak reverse voltage (T_j=25℃)	V_{RRM}	650	V
RMS on-state current (T_C≤80℃)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle , t_p=20ms , T_j=25℃)	I_{TSM}	120	A
I^2t value for fusing (t_p=10ms , T_j=25℃)	I^2t	144	A^2s
Critical rate of rise of on-state current (T_j=125℃)	dI/dt	50	A/μs
Peak gate current (t_p=20μs , T_j=125℃)	I_{GM}	4	A
Average gate power dissipation (T_j=125℃)	$P_{G(AV)}$	1	W

ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

Symbol	Test Condition	Value		Unit
I_{GT}	V_D =12V R_L =100Ω	MAX.	15	mA
V_{GT}		MAX.	1.5	V
V_{GD}	V_D =V_{DRM} T_j =125℃ R_L =100Ω	MIN.	0.2	V
I_L	I_G =1.2I_{GT}	MAX.	40	mA
			60	
I_H	I_T =500mA	MAX.	30	mA
dV/dt	V_D=2/3V_{DRM} T_j =125℃	MIN.	500	V/μs

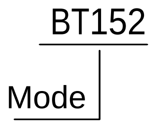
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM} =32A	T_j=25℃	1.5	V
V_{TO}	Threshold voltage	T_j=125℃	0.86	V
R_D	Dynamic resistance	T_j=125℃	36.6	mΩ
I_{DRM}	V_D =V_{DRM} V_R =V_{RRM}	T_j=25℃	5	μA
I_{RRM}		T_j=125℃	1	mA

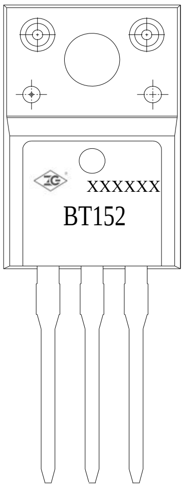
THERMAL RESISTANCES

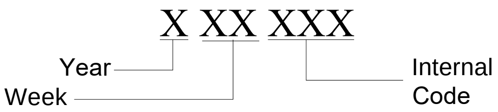
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.05	℃/W

ORDERING INFORMATION



MARKING

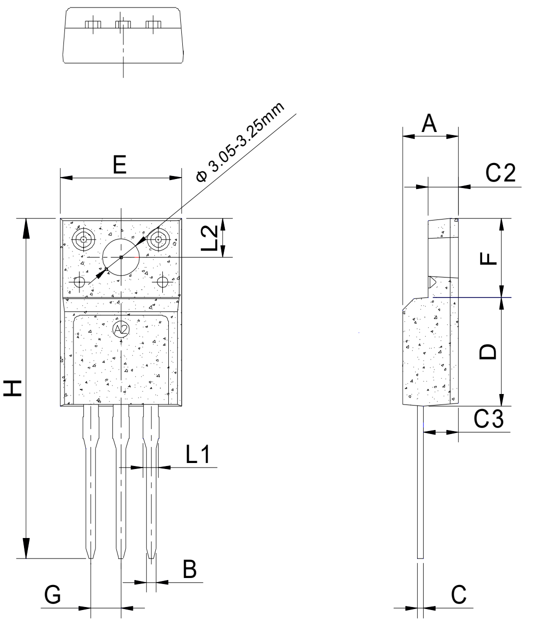




ORDERING INFORMATION

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

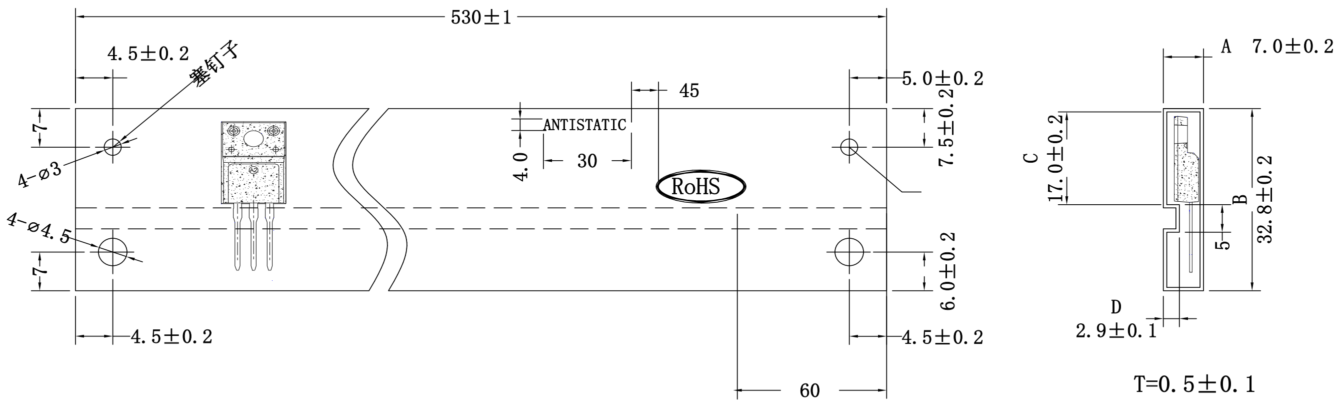
PACKAGE MECHANICAL DATA



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	0.5	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

DELIVERY MODE



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

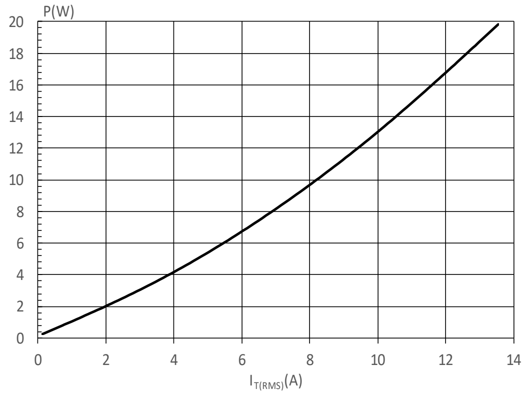


FIG.2: RMS on-state current versus case temperature

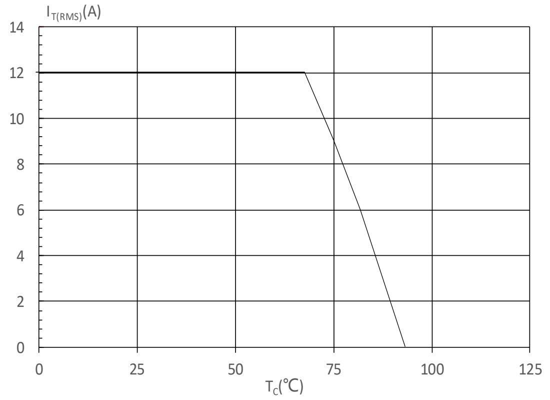


FIG.3: Surge peak on-state current versus number of cycles

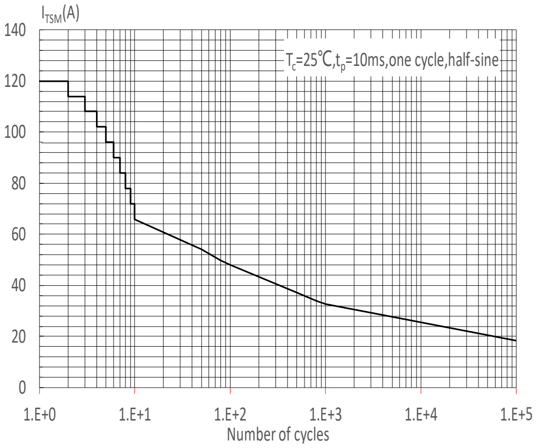


FIG.4: On-state characteristics

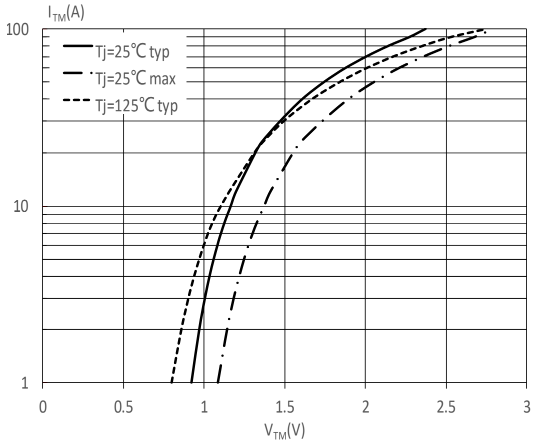


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_p<10ms, and corresponding value of I^2t (dI/dt<100A/μs)

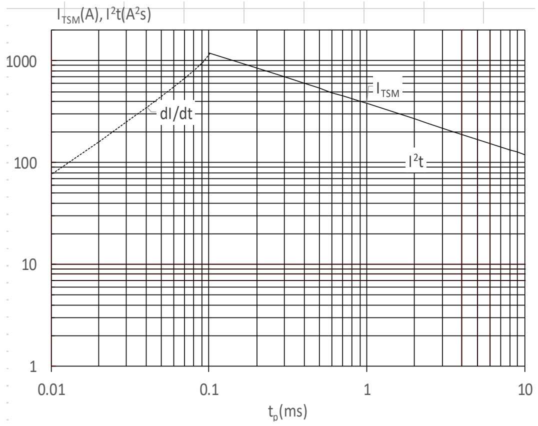


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature