



BT152

Preliminary

SCR

THYRISTOR

■ DESCRIPTION

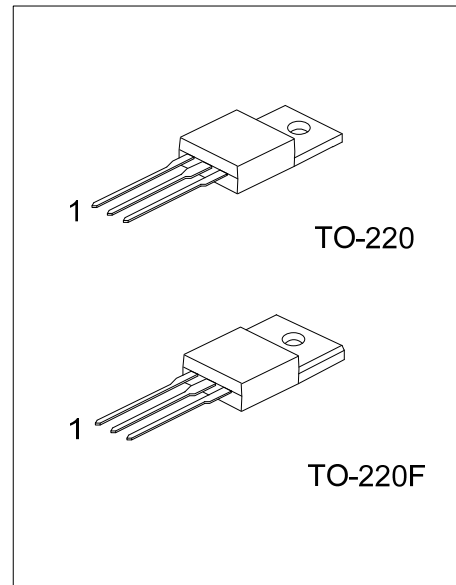
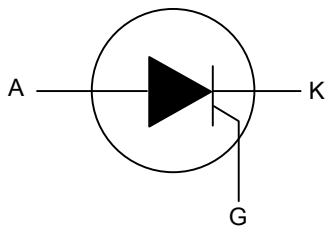
The UTC **BT152** is a thyristor, it uses UTC's advanced technology to provide customers with high bidirectional blocking voltage capability and high thermal cycling performance, etc.

The UTC **BT152** is suitable for motor control, industrial, static switching, heating and domestic lighting, etc.

■ FEATURES

- * High bidirectional blocking voltage capability
- * High thermal cycling performance

■ SYMBOL



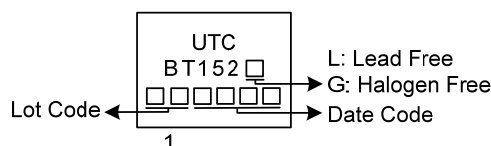
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BT152L-x-TA3-T	BT152G-x-TA3-T	TO-220	K	A	G	Tube
BT152L-x-TF3-T	BT152G-x-TF3-T	TO-220F	K	A	G	Tube

Note: Pin Assignment: K: Cathode A: Anode G: Gate

<p>BT152G-x-TA3-T</p>	<p>(1) Packing Type (2) Package Type (3) Peak Voltage (4) Green Package</p>	<p>(1) T: Tube (2) TA3: TO-220, TF3: TO-220F (3) 4: 450V, 6: 650V, 8: 800V (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltages	BT152-4	V_{DRM}, V_{RRM}	450	V
	BT152-6		650	V
	BT152-8		800	V
Average On-State Current	Half Sine Wave, $T_{MB} \leq 103^\circ\text{C}$	$I_{T(AV)}$	13	A
RMS On-State Current	All Conduction Angles	$I_{T(RMS)}$	20	A
Non Repetitive Surge Peak On-State Current (Half Sine Wave; $T_J=25^\circ\text{C}$ Prior to Surge)	$t=10\text{ms}$	I_{TSM}	200	A
	$t=8.3\text{ms}$		220	A
I^2t Value for Fusing	$t=10\text{ms}$	I^2t	200	A^2s
Repetitive Rate of Rise of On-State Current After Triggering	$I_{TM}=50\text{A}, I_G=0.2\text{A},$ $dI_G/dt=0.2\text{A}/\mu\text{s}$	dI_T/dt	200	$\text{A}/\mu\text{s}$
Peak Gate Current		I_{GM}	5	A
Peak Gate Voltage		V_{GM}	5	V
Peak Reverse Gate Voltage		V_{RGM}	5	V
Peak Gate Power		P_{GM}	20	W
Average Gate Power Dissipation	Over Any 20ms Period	$P_{G(AV)}$	0.5	W
Operating Junction Temperature		T_J	125	$^\circ\text{C}$
Storage Junction Temperature		T_{STG}	-40~+150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL RESISTANCES

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	In Free Air	θ_{JA}		60		K/W
Thermal Resistance Junction to Mounting Base		θ_{JMB}			1.1	K/W

■ STATIC CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	I_{GT}	$V_D=12\text{V}, I_T=0.1\text{A}$		3	32	mA
Latching Current	I_L	$V_D=12\text{V}, I_{GT}=0.1\text{A}$		25	80	mA
Holding Current	I_H	$V_D=12\text{V}, I_{GT}=0.1\text{A}$		15	60	mA
On-State Voltage	V_T	$I_T=40\text{A}$		1.4	1.75	V
Gate Trigger Voltage	V_{GT}	$V_D=12\text{V}, I_T=0.1\text{A}$		0.6	1.5	V
		$V_D=V_{DRM(max)}, I_T=0.1\text{A}, T_J=125^\circ\text{C}$	0.25	0.4		V
Off-State Leakage Current	I_D	$V_D=V_{DRM(max)}, V_R=V_{RRM(max)},$ $T_J=125^\circ\text{C}$		0.2	1.0	mA
	I_R			0.2	1.0	mA

■ DYNAMIC CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Critical Rate of Rise of Off-State Voltage	dV_D/dt	$V_{DM}=67\%V_{DRM(max)}, T_J=125^\circ\text{C},$ Exponential Waveform Gate Open Circuit	200	300		$\text{V}/\mu\text{s}$
Gate Controlled Turn-On Time	t_{GT}	$V_D=V_{DRM(max)}, I_G=0.1\text{A},$ $dI_G/dt=5\text{A}/\mu\text{s}, I_{5TM}=40\text{A}$		2		μs
Circuit Commutated Turn-Off Time	t_Q	$I_{TM}=50\text{A}, V_R=25\text{V}, dI_{TM}/dt=30\text{A}/\mu\text{s},$ $dV_D/dt=50\text{V}/\mu\text{s}, R_{GK}=100\Omega$		70		μs

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