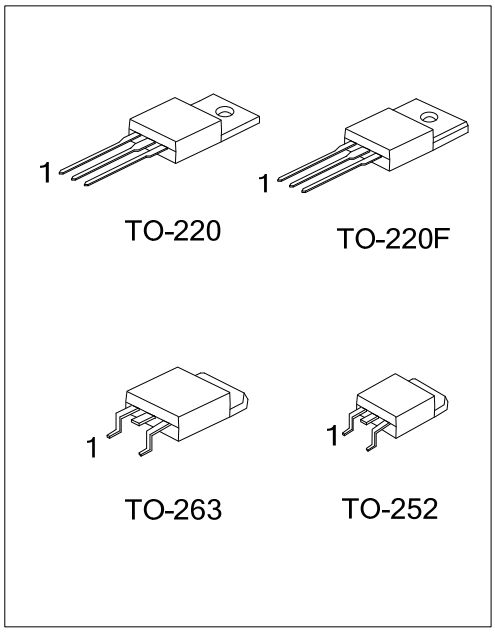
THYRISTOR



■ DESCRIPTION

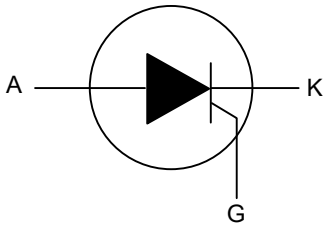
The UTC **BT152** is a thyristor, it uses UTC's advanced technology to provide customers with high bidirectional blocking voltage capability and high thermal cycling performance, etc.

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

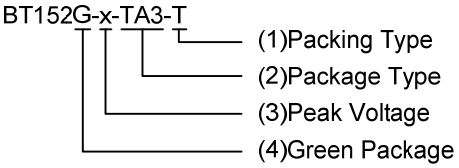
■ SYMBOL



■ ORDERING INFORMATION

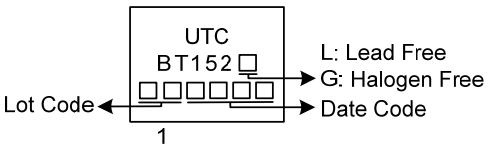
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BT152L-x-TA3-T	BT152G-x-TA3-T	TO-220	K	A	G	Tube
BT152L-x-TF3-T	BT152G-x-TF3-T	TO-220F	K	A	G	Tube
BT152L-x-TN3-R	BT152G-x-TN3-R	TO-252	K	A	G	Tape Reel
BT152L-x-TQ2-T	BT152G-x-TQ2-T	TO-263	K	A	G	Tube
BT152L-x-TQ2-R	BT152G-x-TQ2-R	TO-263	K	A	G	Tape Reel

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



(1) T: Tube, R: Tape Reel
(2) TA3: TO-220, TF3: TO-220F, TN3: TO-252
TQ2: TO-263
(3) 4: 450V, 6: 650V, 8: 800V
(3) G: Halogen Free and Lead Free, L: Lead Free

■ 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}≤103˚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˚C Prior to Surge)	t=10ms	I_{TSM}	200	A
	t=8.3ms		220	A
I^2t Value for Fusing	t=10ms	I^2t	200	A^2s
Repetitive Rate of Rise of On-State Current After Triggering	I_{TM}=50A, I_G=0.2A, dI_G/dt=0.2A/μs	dI_T/dt	200	A/μs
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	°C
Storage Junction Temperature		T_{STG}	-40 ~ +150	°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 DATA

PARAMETER			SYMBOL	RATINGS	UNIT
Junction to Ambient	In Free Air	TO-220 TO-220F TO-263	θ_{JA}	60	K/W
		TO-252		75	K/W
Thermal Resistance Junction to Mounting Base		TO-220 TO-220F	θ_{JMB}	1.1	K/W
		TO-263		4.0	K/W
		TO-252		2.3	K/W

■ STATIC CHARACTERISTICS (T_J=25˚C unless otherwise stated)

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

■ DYNAMIC CHARACTERISTICS (T_J=25˚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˚C, Exponential Waveform Gate Open Circuit	200	300		V/μs
Gate Controlled Turn-On Time	t_{GT}	V_D=$V_{DRM(max)}$, I_G=0.1A, dI_G/dt=5A/μs, $I5_{TM}$=40A		2		μs
Circuit Commutated Turn-Off Time	t_Q	I_{TM}=50A, V_R=25V, dI_{TM}/dt=30A/μs, dV_D/dt=50V/μs, R_{GK}=100Ω		70		μs