

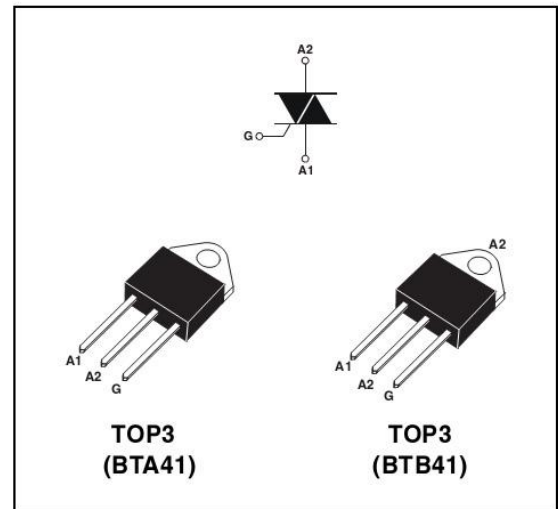
Silicon Controlled Rectifier

Features

- NPNPN five-layer silicon bidirectional device;
- With independent intellectual property rights of single-side grooving technology, table glass passivation process;
- Multilayer metallized electrode on the back;
- High blocking voltage and high temperature stability

Application

- Solid state relay;
- Phase-controlled circuit;
- Adjustable heating controller;
- Speed control controller;



MAXIMUM RATINGS

Ratings at 25°C ambient temperature unless otherwise specified

PARAMETER	SYMBOL	Conditions		Limits	Units
RMS On-state Current	$I_{T(RMS)}$	BTA BTB	$T_c=80^\circ\text{C}$ $T_c=90^\circ\text{C}$	41	A
Non repetitive surge peak on-state current	I_{TSM}	F=50HZ t=20ms		410	A
I ² t value for fusing	I^2t	tp=10ms		880	A ² S
Critical rate of rise of on-state current	di/dt	Tj=125°C		50	A/us
Peak gate current	I_{GM}	tp=20us Tj=125°C		8	A
Repetitive peak off-state voltage	V_{DRM}	Tj=25°C		800/1000/1200	V
Repetitive peak reverse voltage	V_{RRM}	Tj=25°C		800/1000/1200	V
Average gate power dissipation	$P_{G(AV)}$	Tj=125°C		1	W
Operating junction temperature range	Tj			-40~125	°C
Storage junction temperature range	Tstg			-40~150	°C

ELECTRICAL CHARACTERISTICS (Three quadrants)

Parameter	Test Condition	Quadrant	MIN	TYPE	MAX	Unit
I_{GT}	$V_D=12V, R_L=100\Omega$	I II III	-	-	50	mA
V_{GT}			-	-	1.5	V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ C$		0.2	-	-	V
I_H	$I_T=0.5A$		-	-	60	mA
I_L	$I_G=1.2I_{GT}$		-	-	100	mA
dv/dt	$V_D=2/3 \times V_{DRM} T_j=125^\circ C$ Gate open		500	-	-	V/ μs
(dv/dt)c	$T_j=125^\circ C$		10	-	-	V/us

ELECTRICAL CHARACTERISTICS (Four quadrants)

Parameter	Test Condition	Quadrant	MIN	TYPE	MAX	Unit
I_{GT}	$V_D=12V, R_L=100\Omega$	I, II, III	-	-	50	mA
		IV	-	-	120	V
V_{GT}	$V_D=V_{DRM} T_j=125^\circ C$	I, II, III	-	-	1.5	V
V_{GD}			0.2	-	-	V
I_H	$I_T=0.5A$		-	-	80	mA
I_L	$I_G=1.2I_{GT}$	I, II, III	-	-	70	mA
		IV	-	-	160	mA
dv/dt	$V_D=2/3 \times V_{DRM} T_j=125^\circ C$ Gate open		500	-	-	V/ μs
(dv/dt)c	$T_j=125^\circ C$		10	-	-	V/us

STATIC CHARACTERISTICS

Symbol	Test Condition			Value	Unit	
V_{TM}	Peak on-state voltage	$I_{TM}=82A$	$T_j=25^{\circ}C$	MAX	1.50	V
V_{T0}	Threshold voltage		$T_j=125^{\circ}C$	MAX	0.86	V
R_d	Slope resistance		$T_j=125^{\circ}C$	MAX	6.4	m Ω
I_{DRM} I_{RRM}	$V_D=V_{DRM}=V_{RRM}$		$T_j=25^{\circ}C$	MAX	10	μA
			$T_j=125^{\circ}C$		2	mA
$R_{th(j-c)}$	junction to case(AC)		BTA		0.9	$^{\circ}C/W$
			BTB		0.6	$^{\circ}C/W$

BT41, BT41G, BT41L (MPL = 2)

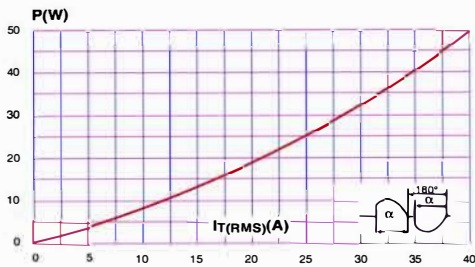


FIG.1: Maximum power dissipation versus RMS on-state current

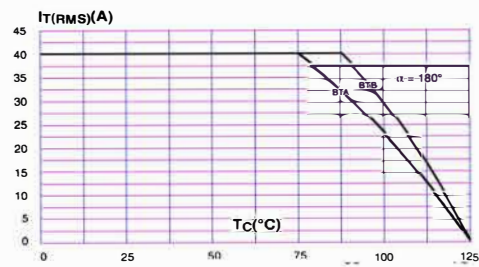


FIG.2: RMS on-state current versus case temperature

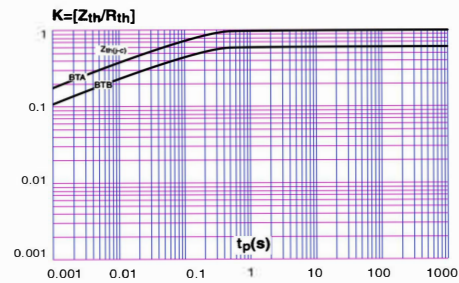


FIG.3: Transient thermal resistance diagram

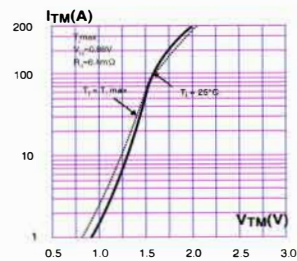


FIG.4: On-state characteristics (maximum values)

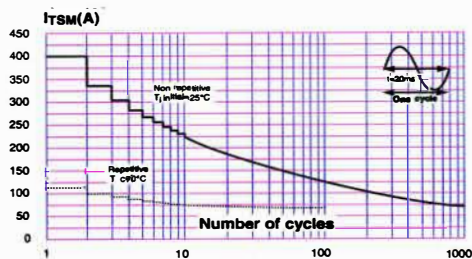


FIG.5: Surge peak on-state current versus number of cycles

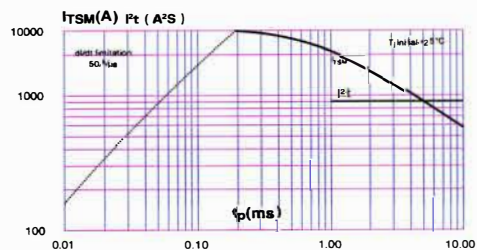


FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t .

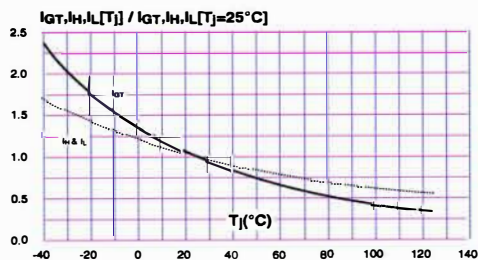


FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature

PACKAGE MECHANICAL DATA

●TO-3P

Unit: mm (± 0.1)

