

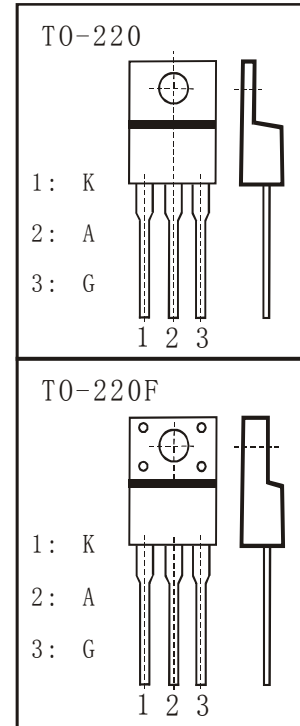
Silicon Controlled Rectifiers—TSE151

Application

TSE151 is designed primarily application for motorcycle ignition and voltage regulator. It's also widely used for switch control circuit, small motor controller, lamp controller, leakage current detection, lamps and lanterns relay stimulus, logic circuit driver, larger power SCR driver, and others.

Feature

- Low forward voltage drop
- High peak repetitive off-state voltage
- High sensitivity of triggering
- High reliability
- Package: TO-220F TO-220
- Reference: BT151



Absolute rating (Ta=25℃)

Parameter	Symbol	Ratings	Unit
Peak Repetitive Off-State Voltage	V_{DRM}	600	V
Peak Repetitive Reverse Voltage	V_{RRM}	600	V
On-State Average Current	$I_{T(AV)}$	8	A
RMS On-State Current	$I_{T(RMS)}$	12	A
Peak Non-repetitive Surge Current	I_{TSM}	80	A
Junction Temperature	T_J	110	℃
Storage Temperature	T_{atg}	-40~125	℃

Electrical characteristic (Ta=25℃)

Parameter	Symbol	UNIT	Criteria			Test conditions
			Min	Type	Max	
Peak Repetitive Off-State Voltage	V_{DRM}	V	400	600		$I_D=0.1mA$

Peak Repetitive Reverse Voltage	V_{RRM}	V	400	600		$I_R=0.1mA$
Peak Repetitive Off-State Current	I_{DRM}	μA			20	$V_{DRM}=600V$
Peak On-State Voltage	V_{TM}	V		1.25	1.7	$I_T=16A$
Holding Current	I_H	mA		10	20	$I_T=0.6A, I_{GT}=20mA$
Latching Current	I_L	mA		10	40	$V_D=12V, I_{GT}=0.1A$
Gate Trigger Current ※	I_{GT}	mA	1	5	10	$V_D=6V, R_L=100\Omega$
Gate Trigger Voltage	V_{GT}	V			1.2	$V_D=6V, R_L=100\Omega$
Peak gate current	I_{GM}	A			2	
Peak gate voltage	V_{GM}	V			5	
Peak reverse gate voltage	V_{RGM}	V			5	
Critical Rate of Rise Of Off-State Voltage	dV/dt	$V/\mu s$	50	130		$V_{DM}=67\%V_{DRM(MAX)}, R_{GK}=100\Omega, I_{GT}=0$
Critical Rate of Rise of On-State Current	dI_T/dt	$A/\mu s$			50	$I_T=20A, I_{GT}=50mA, dI_{GT}/dt=50 mA/\mu s$
Gate Non-Trigger Current	V_{GD}	V	0.2			$V_{DRM}=400V, R_{GR}=1K\Omega, T_J=110^\circ C$

※ : The parameter is related to the operating ambient temperature

Thermal performance

Parameter	Symbol	Condition	Value	Unit
Thermal resistance junction to mounting base	R_{thj-mb}	Normal state	1.3	$^\circ C/W$
Thermal resistance junction to ambient	R_{thj-a}		70	$^\circ C/W$