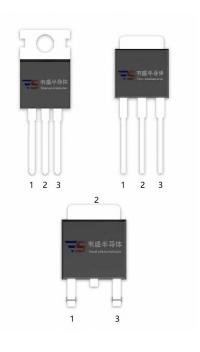


#### **DESCRIPTION:**

With high ability to withstand the shock loading of large current, **VST151-SS** of silicon controlled rectifiers provide high dv/dt rate with strong resistance to electromagnetic interference.



### **MAIN FEATURES**

Symbol	Value	Symbol
V <sub>DRM</sub> / V <sub>RRM</sub>	650/800	V
I <sub>T(RMS)</sub>	12	Α
I <sub>GT</sub>	≤15	mA

### **ABSOLUTE MAXIMUM RATINGS**

Parameter		Symbol	Value	Unit		
Storage junction temperature range		T <sub>stg</sub>	-40 - 150	$^{\circ}$		
Operating junction temperature range		Operating junction temperature range		Tj	-40 - 150	$^{\circ}$ C
Repetitive peak off-state voltage (T <sub>j</sub> =25℃)		VDRM	650/800	V		
Repetitive peak reverse voltage (Tj=25℃)		V <sub>RRM</sub>	650/800	V		
RMS on-state current	TO-252-4R (Tc=115°C)		12	А		
	TO-263 (Tc=100°C)	T <sub>(RMS)</sub>				
Non repetitive surge peak on-state current (F=50Hz tp=10ms)		Ітѕм	120	А		
Non repetitive surge peak on-state current (F=60Hz tp=8.3ms)		Ітѕм	132	А		
I <sup>2</sup> t value for fusing (tp=10ms)		l <sup>2</sup> t	72	A <sup>2</sup> s		
Repetitive rate of rise of on-state current (I <sub>G</sub> =2×I <sub>GT</sub> )		dl⊤/dt	50	A/µs		
Peak gate current		I <sub>GM</sub>	2	Α		



Peak gate power	P <sub>GM</sub>	5	W
Average gate power dissipation	P <sub>G(AV)</sub>	0.5	W

# **ELECTRICAL CHARACTERISTICS** (T<sub>j</sub>=25℃ unless otherwise specified)

Symbol	Toot Condition	Value			11:4
	Test Condition	MIN.	TYP.	MAX.	Unit
Іст	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	-	4	15	mA
V <sub>GT</sub>	VD-12V KL-3322	-	0.75	1.5	V
V <sub>GD</sub>	$V_D = V_{DRM} T_j = 150 ^{\circ} C R_L = 3.3 K\Omega$	0.2	-	-	V
IL	Ig=1.2Igт	-	12	40	mA
lн	I <sub>T</sub> =500mA	-	12	30	mA
dV/dt	V <sub>D</sub> =540V Gate Open T <sub>j</sub> =150℃	50	-	-	V/µs
dV/dt	V <sub>D</sub> =436V Gate Open T <sub>j</sub> =150℃	80	-	-	V/µs
ton	I <sub>GT</sub> =20mA I <sub>A</sub> =100mA I <sub>R</sub> =10mA	-	2	-	μs
t <sub>off</sub>	T <sub>j</sub> =25℃	-	30	-	μs
Rd	Dynamic resistance T <sub>j</sub> =125℃	-	-	35	mΩ

### **STATIC CHARACTERISTICS**

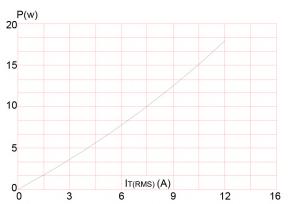
Symbol	Parameter		Value(MAX)	Unit
V <sub>TM</sub>	I <sub>тм</sub> =23A tp=380µs	Tj=25℃	1.6	V
IDRM	VD=VDRM VR=VRRM	Tj=25℃	10	μΑ
I <sub>RRM</sub>		Tj=150℃	1	mA

## **THERMAL RESISTANCES**

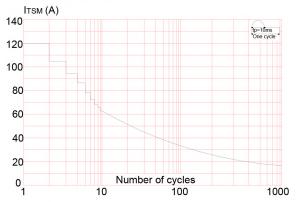
Symbol	Parameter		Value	Unit
R <sub>th(j-c)</sub> Ju	Junction to case	TO-252-4R	1.3	- °C/W
		TO-263	2.0	
R <sub>th(j-a)</sub>	Junction to ambient	TO-252-4R	70	
		TO-263	45	



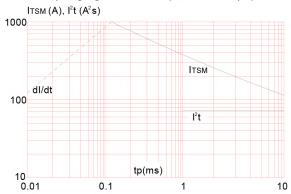
**FIG.1:** Maximum power dissipation versus RMS on-state current



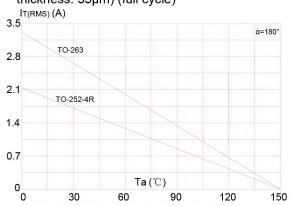
**FIG.3:** Surge peak on-state current versus number of cycles



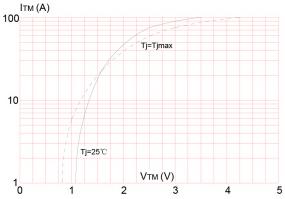
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of l't (dl/dt < 50A/μs)



**FIG.2:** RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35µm) (full cycle)



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



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

