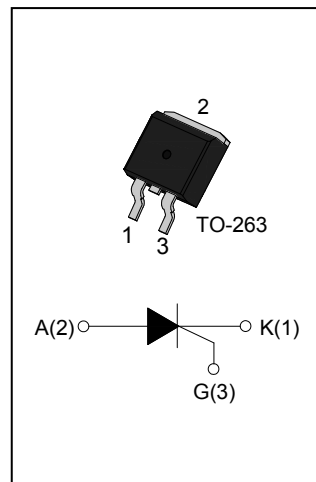




DESCRIPTION:

With high ability to withstand the shock loading of large current, JCTx20 SCRs provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. Package TO-263 is RoHS compliant. (2011/65/EU)



MAIN FEATURES

Symbol	JCT620	JCT820
V_{DRM}/V_{RRM}	600V	800V
$I_{T(RMS)}$	20A	
I_{GT}	$\leq 25mA$	

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range	T_j	-40-150	$^{\circ}C$
Repetitive peak off-state voltage($T_j=25^{\circ}C$)	V_{DRM}	600/800	V
Repetitive peak reverse voltage($T_j=25^{\circ}C$)	V_{RRM}	600/800	V
RMS on-state current TO-263 ($T_C=80^{\circ}C$)	$I_{T(RMS)}$	20	A
Non repetitive surge peak on-state current ($t_p=10ms$)	I_{TSM}	250	A
I^2t value for fusing ($t_p=10ms$)	I^2t	312.5	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	50	$A/\mu s$
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	5	W

ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	-	-	25	mA
V_{GT}		-	-	1.3	V
V_{GD}	$V_D=V_{DRM} T_j=150^{\circ}\text{C } R_L=3.3\text{K}\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	70	mA
I_H	$I_T=500\text{mA}$	-	-	60	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=150^{\circ}\text{C}$	200	-	-	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=40\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.55	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=150^{\circ}\text{C}$	4	mA

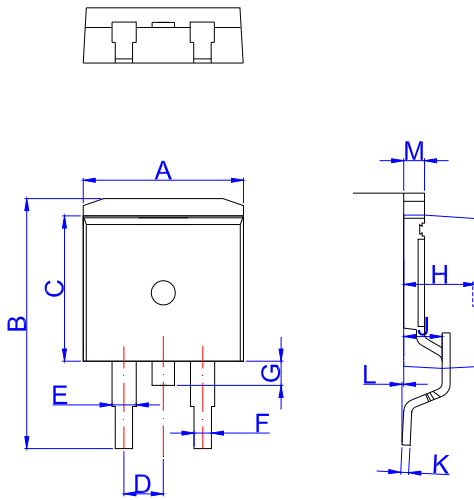
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-263	2.5	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	junction to ambient		45	

ORDERING INFORMATION

JieJie Microelectronics Co.,Ltd	J SCRs 6: $V_{DRM} / V_{RRM} \geq 600\text{V}$ 8: $V_{DRM} / V_{RRM} \geq 800\text{V}$	CT 6 20 $I_{T(RMS)}: 20\text{A}$	E E: TO-263 ETR: TO-263(Tape&Reel)
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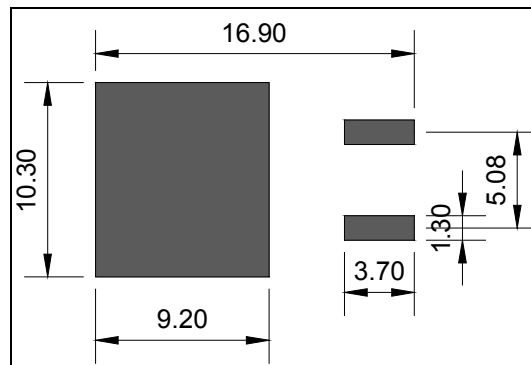
PACKAGE MECHANICAL DATA



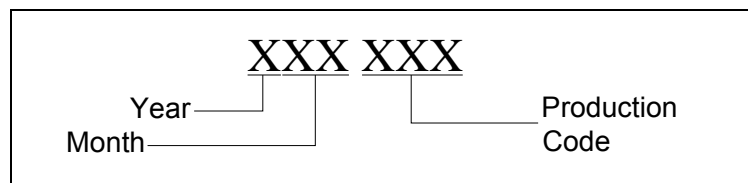
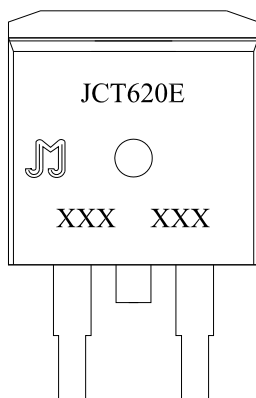
TO-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053

FOOTPRINT-TO-263 (dimensions in mm)



MARKING



PACKAGE INFORMATION

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-263	TUBE	50	1,000	6,000
TO-263	TUBE	50	1,000	8,000
PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-263	TAPING	800	4,000	13 inch

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

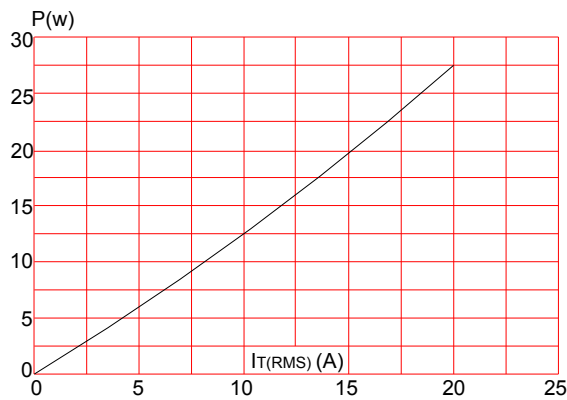


FIG.3: Surge peak on-state current versus number of cycles

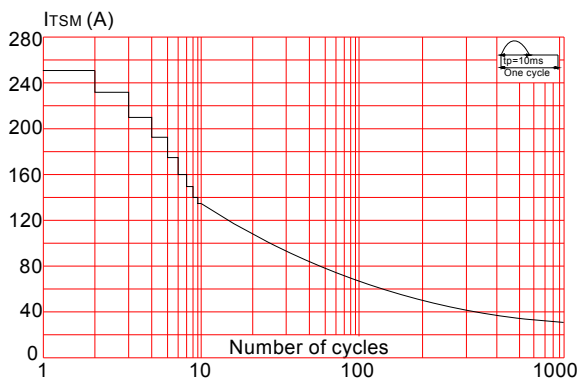


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35μm)(full cycle)

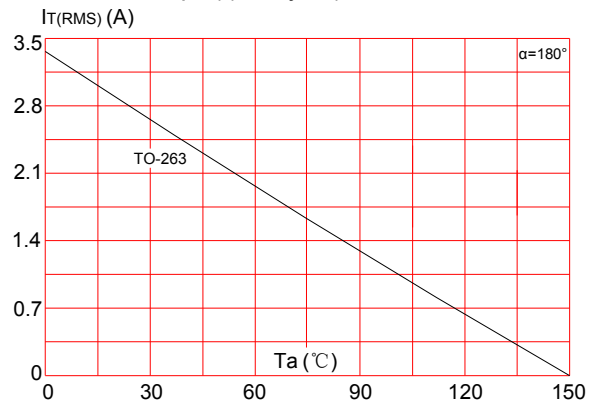


FIG.4: On-state characteristics (maximum values)

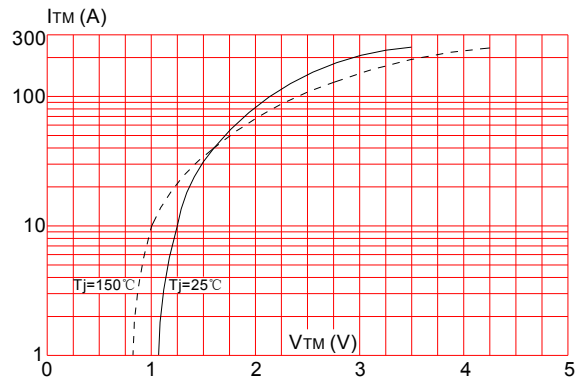


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t

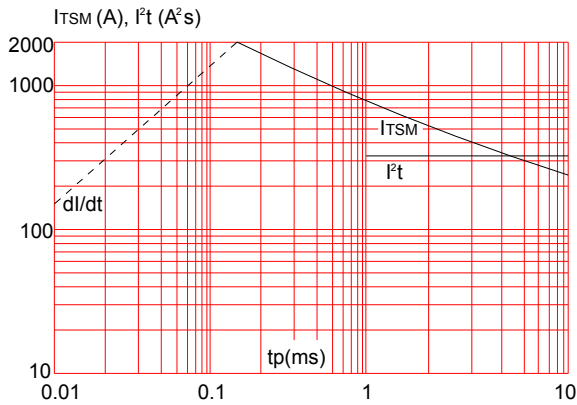
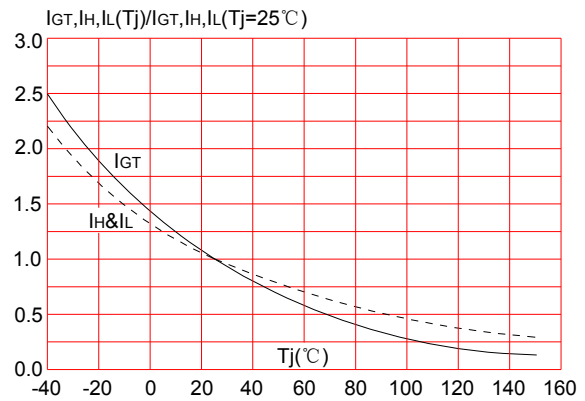
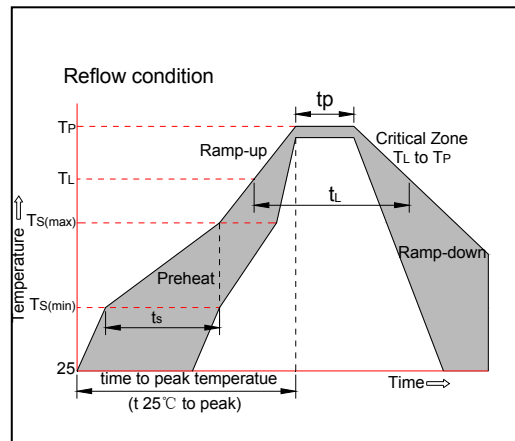


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature




SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max ($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



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