

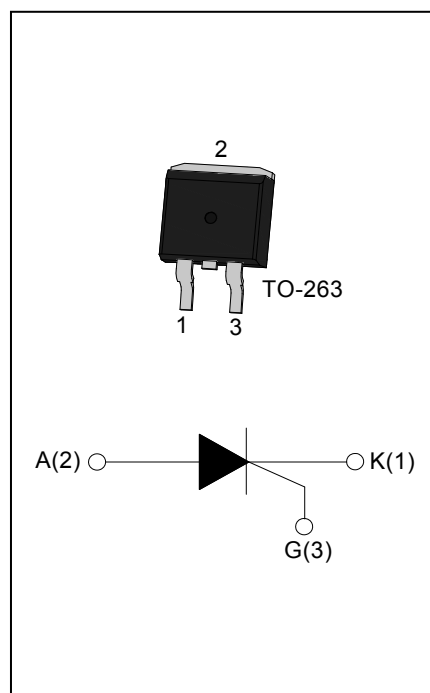


DESCRIPTION:

With high ability to withstand the shock loading of large current, JCTx40 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	JCT640	JCT840
V _{DRM} / V _{R_{RRM}}	600V	800V
I _{T(RMS)}	40A	
I _{GT}	≤35mA	



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T _{stg}	-40-150	°C
Operating junction temperature range	T _j	-40-125	°C
Repetitive peak off-state voltage(T _j =25°C)	V _{DRM}	600/800	V
Repetitive peak reverse voltage(T _j =25°C)	V _{R_{RRM}}	600/800	V
RMS on-state current	I _{T(RMS)}	40	A
TO-263 (T _C =93°C)			
Non repetitive surge peak on-state current (tp=10ms)	I _{TSM}	460	A
I ² t value for fusing (tp=10ms)	I ² t	1060	A ² s
Critical rate of rise of on-state current (I _G =2×I _{GT})	di/dt	50	A/μs
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}	$V_D=12\text{V } R_L=33\Omega$	-	15	35	mA
V_{GT}		-	-	1.5	V
V_{GD}	$V_D=V_{DRM} T_j=125^{\circ}\text{C } R_L=3.3\text{K}\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	90	mA
I_H	$I_T=500\text{mA}$	-	-	75	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$	200	-	-	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=80\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.55	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	10	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	4	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-263	1.3	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	junction to ambient		45	

ORDERING INFORMATION

<p>J</p> <p>JieJie Microelectronics Co.,Ltd</p>	<p>CT</p> <p>SCRs</p> <p>6: $V_{DRM} / V_{RRM} \geq 600\text{V}$ 8: $V_{DRM} / V_{RRM} \geq 800\text{V}$</p>	<p>6</p>	<p>40</p> <p>$I_{T(RMS)}:40\text{A}$</p>	<p>E</p> <p>E:TO-263</p>	<p>-/</p> <p>Blank: Tube TR: Tape & Reel</p>
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MARKING

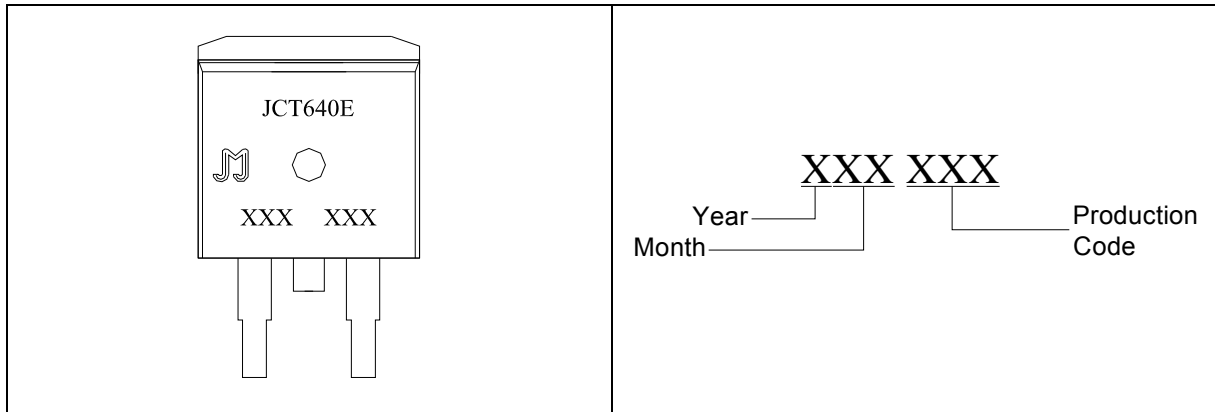


FIG.1: Maximum power dissipation versus RMS on-state current

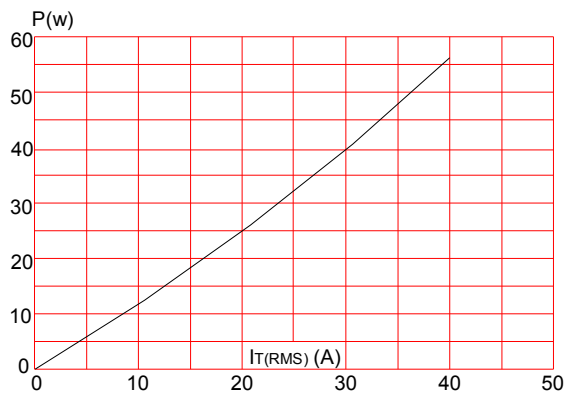


FIG.3: Surge peak on-state current versus number of cycles

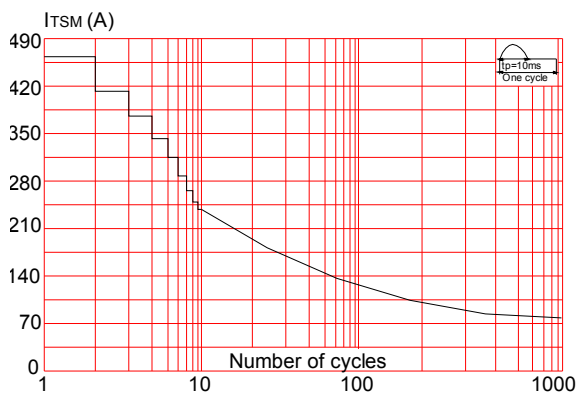


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35 μ m)(full cycle)

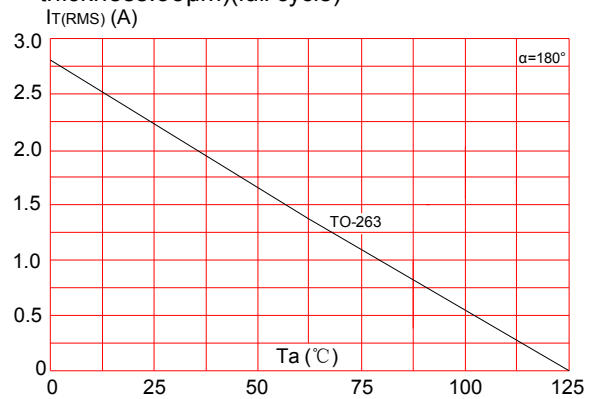


FIG.4: On-state characteristics (maximum values)

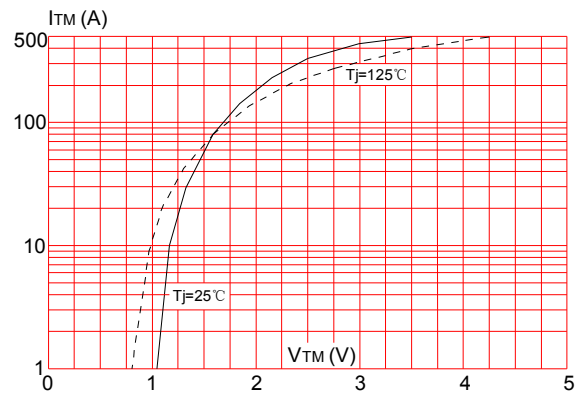


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

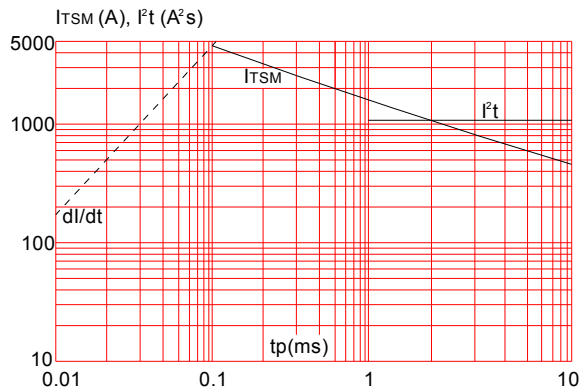
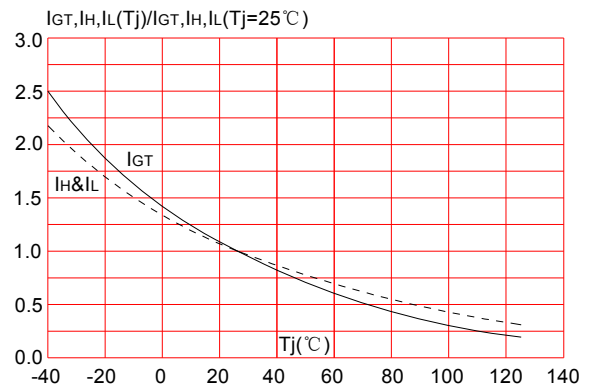
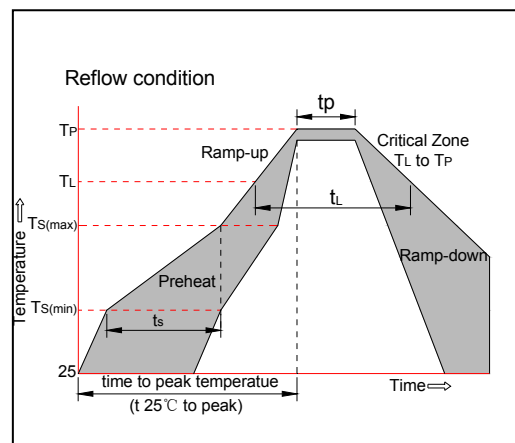


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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



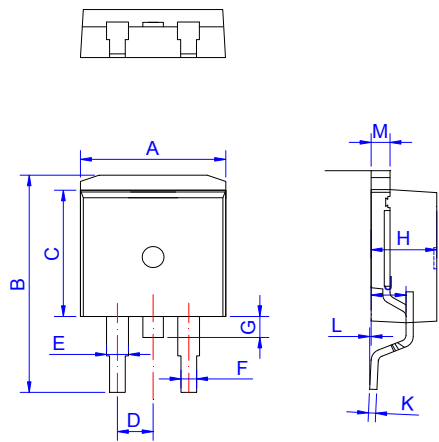
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT640/840E	600/800	35	TO-263	50	Tube
				800	Tape & Reel

Document Revision History

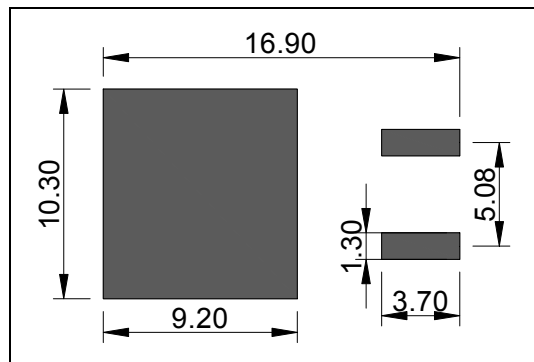
Date	Revision	Changes
May 7, 2021	8	Last update

PACKAGE MECHANICAL DATA

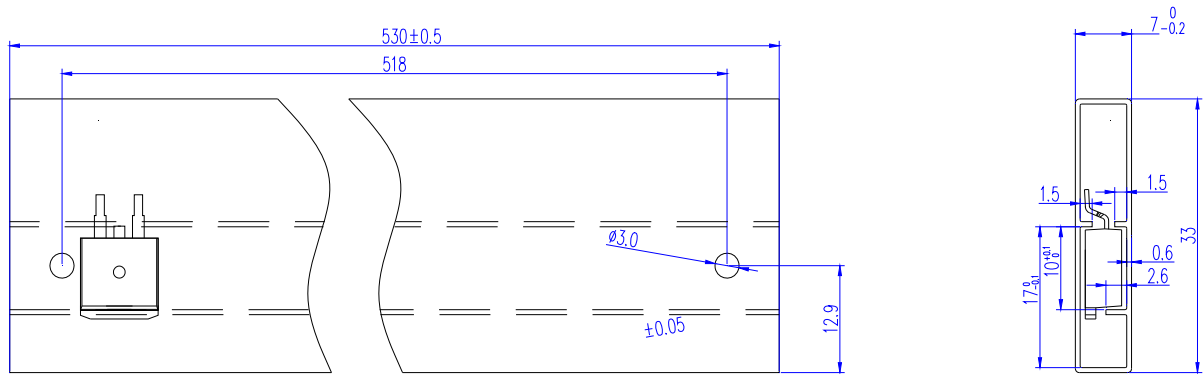


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55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

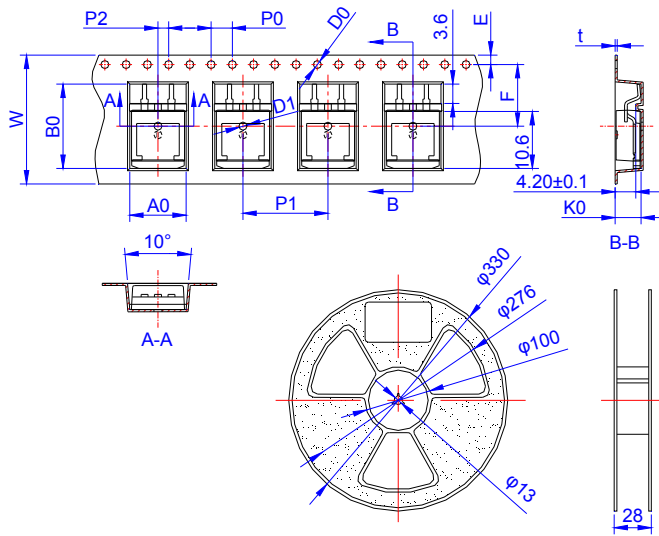
FOOTPRINT-TO-263 (dimensions in mm)



DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-263	TUBE	50	1,000	5,000




Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	23.70	24.00	24.30	0.933	0.945	0.957
E	1.65	1.75	1.85	0.065	0.069	0.073
F	11.40	11.50	11.60	0.449	0.453	0.457
D0	-	1.50	1.60	-	0.059	0.063
D1	-	1.50	1.60	-	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	15.90	16.00	16.10	0.626	0.630	0.634
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	10.80	10.90	11.00	0.425	0.429	0.433
B0	16.20	16.30	16.40	0.638	0.642	0.646
K0	4.80	4.90	5.00	0.189	0.193	0.197
t	0.35	0.40	0.45	0.014	0.016	0.018

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-263	TAPING	800	4,000	13 inch



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