

JST131V-800E 1A TRIAC

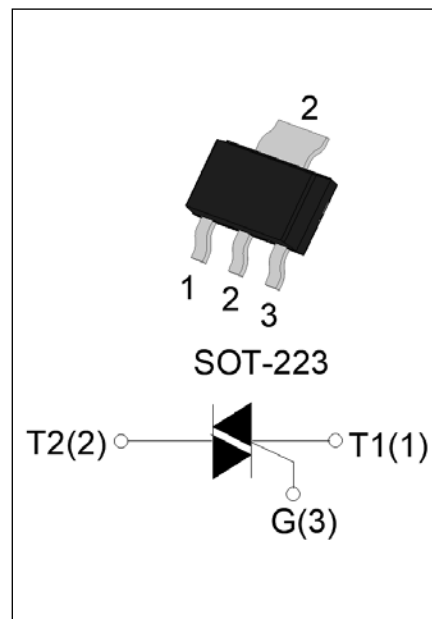
Rev.A.1.1

DESCRIPTION:

The JST131V-800E triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. Package SOT-223 is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
V_{DRM}/V_{RRM}	800	V
$I_{GT\ I}/II/III/IV$	10/10/10/25	mA


ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T _{stg}	-40-150	℃
Operating junction temperature range		T _j	-40-125	℃
Repetitive peak off-state voltage (T _j =25℃)		V _{DRM}	800	V
Repetitive peak reverse voltage (T _j =25℃)		V _{RRM}	800	V
RMS on-state current (T _c ≤98℃)		I _{T(RMS)}	1	A
Non repetitive surge peak on-state current (full cycle , t _p =20ms , T _j =25℃)		I _{TSM}	16.5	A
Non repetitive surge peak on-state current (full cycle , t _p =16.6ms , T _j =25℃)			18	
I ² t value for fusing (t _p =10ms , T _j =25℃)		I ² t	1.36	A ² s
Critical rate of rise of on-state current (I _G =2×I _{GT} , f=100Hz , T _j =125℃)	I - II -III	di/dt	70	A/μs
	IV		40	
Peak gate current (t _p =20μs , T _j =125℃)		I _{GM}	2	A
Average gate power dissipation (T _j =125℃)		P _{G(AV)}	0.5	W
Peak gate power		P _{GM}	5	W
Peak pulse voltage (T _j =25℃ ; non-repetitive,off-state;FIG.8)		V _{PP}	3.5	kV

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

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	I - II - III	MAX.	10	mA
		IV		25	
V_{GT}		ALL	MAX.	1.3	V
V_{GD}	$V_D=V_{DRM}$ $T_J=125^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$	ALL	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I - III - IV	MAX.	15	mA
		II		30	
I_H	$I_T=50\text{mA}$		MAX.	15	mA
dV/dt	$V_D=540\text{V}$ Gate Open $T_J=110^{\circ}\text{C}$		MIN.	200	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	$(dI/dt)_c=0.44\text{A/ms}$, $T_J=110^{\circ}\text{C}$		MIN.	6	$\text{V}/\mu\text{s}$
t_{on}	$I_G=40\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_J=25^{\circ}\text{C}$		TYP.	3	μs
t_{off}				30	

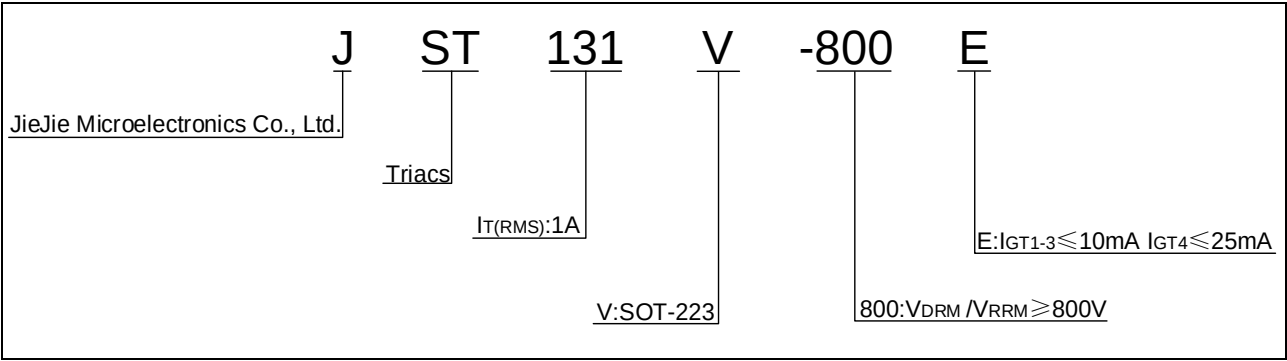
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=1.4\text{A}$ $t_p=380\mu\text{s}$	$T_J=25^{\circ}\text{C}$	1.45	V
V_{TO}	Threshold voltage	$T_J=125^{\circ}\text{C}$	0.96	V
R_D	Dynamic resistance	$T_J=125^{\circ}\text{C}$	225	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_J=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_J=125^{\circ}\text{C}$	0.25	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	20	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	130	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION



MARKING

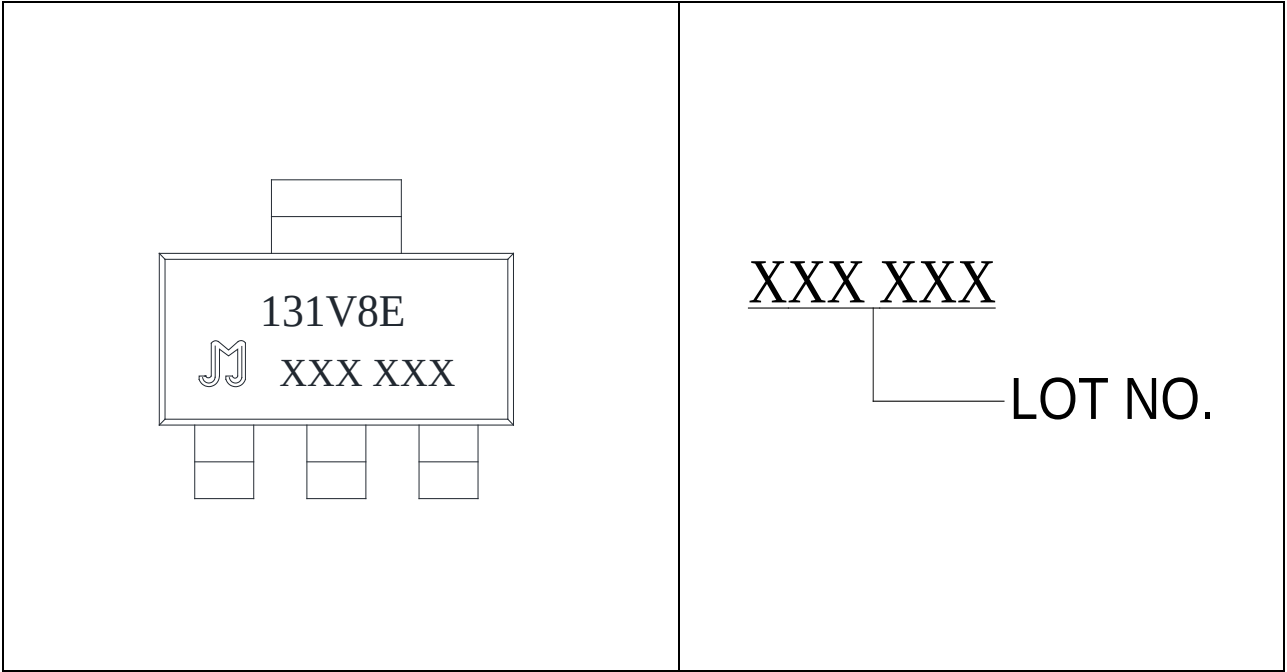


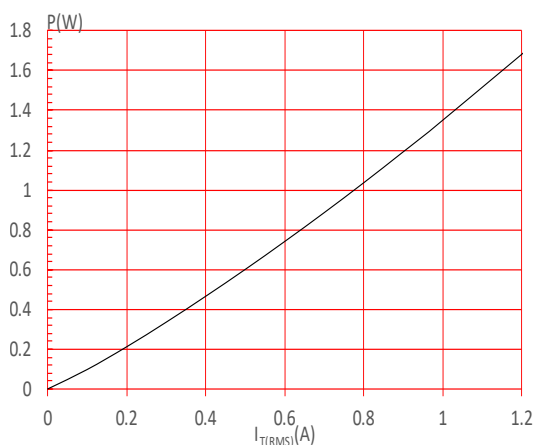
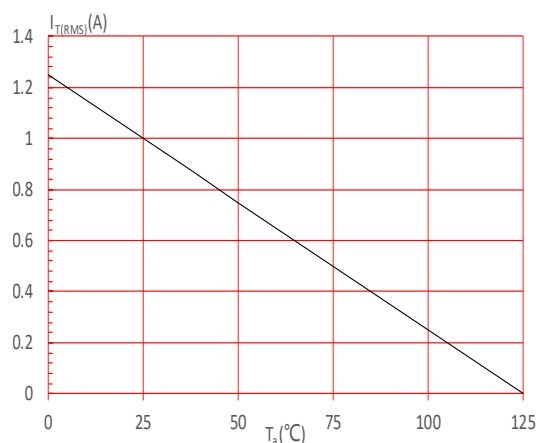
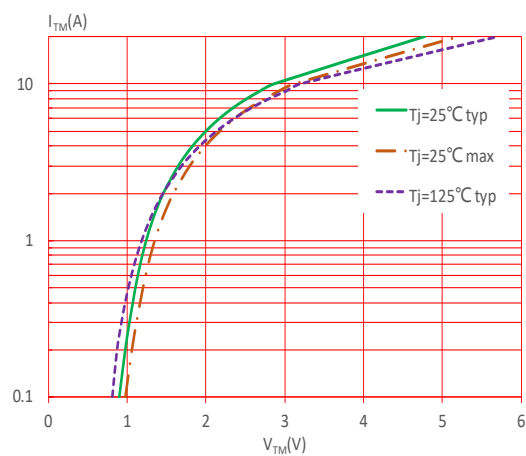
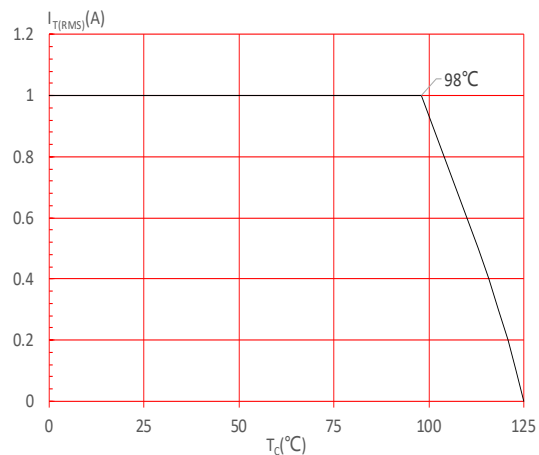
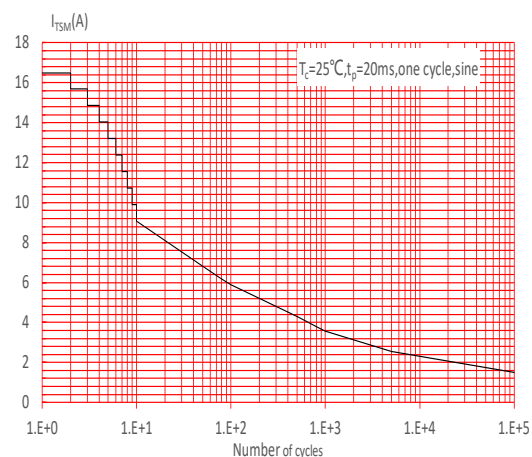
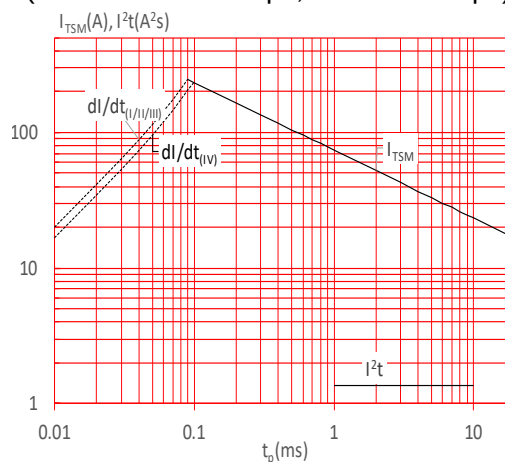
FIG.1: Maximum power dissipation versus RMS on-state current

FIG.3: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35 μ m)(full cycle)

FIG.5: On-state characteristics

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

FIG.4: Surge peak on-state current versus number of cycles

FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t (I - II - III: $di/dt < 70A/\mu s$; IV: $di/dt < 40A/\mu s$)


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

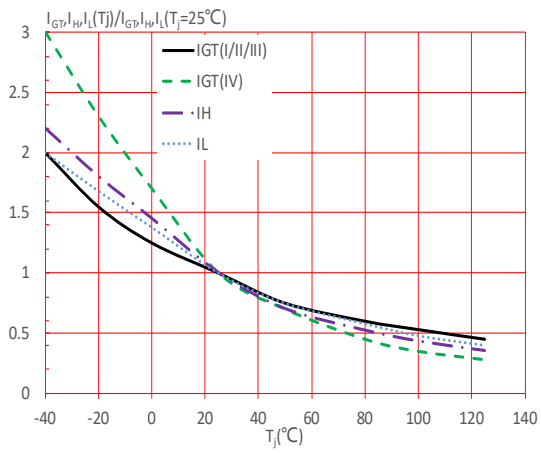
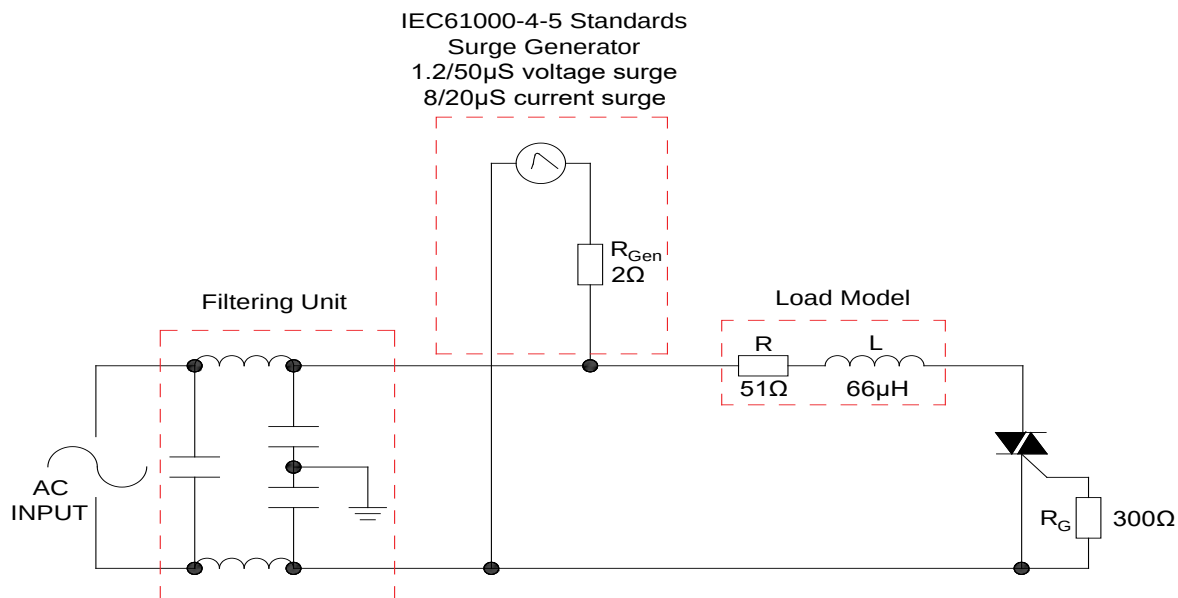
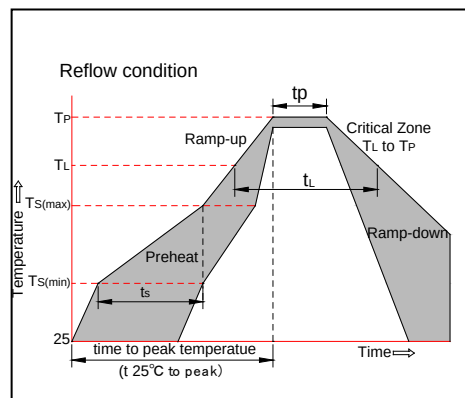


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



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



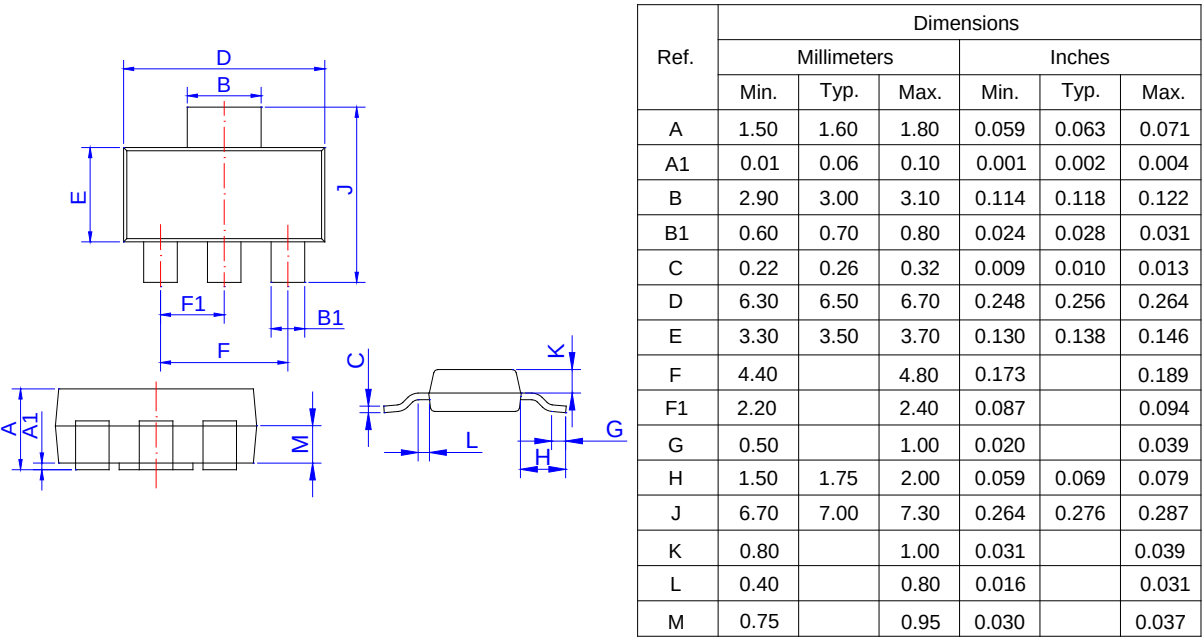
ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		I - II - III	IV			
JST131V-800E	800	10	25	SOT-223	4,000	Tape & Reel

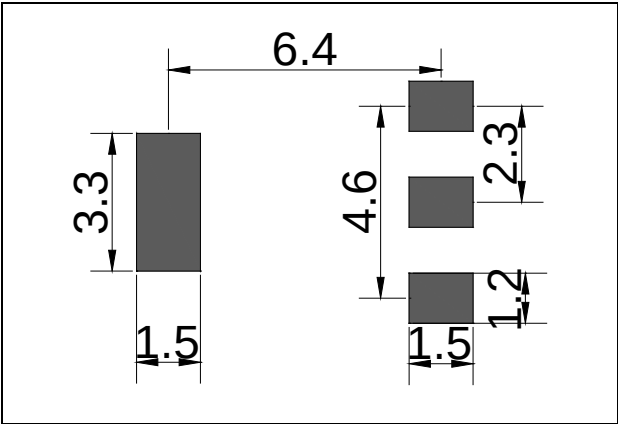
Document Revision History

Date	Revision	Changes
Apr.14, 2023	A.1.0	Last updated
Oct.23, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

PACKAGE MECHANICAL DATA



FOOTPRINT-SOT-223 (dimensions in mm)



Technical drawing of a 12V 100Ah battery, showing front, side, and cross-sectional views with dimensions.

Front View (Top): Shows the battery terminals (P0, P1, P2) and the main body. Dimensions include overall width (W), terminal spacing (P0, P1, P2), and terminal height (E). Section lines A-A and B-B are indicated.

Side View (Right): Shows the battery profile. Dimensions include terminal height (T), terminal width (B0), terminal thickness (B1), and overall height (K0).

Cross-section A-A (Bottom): Shows the internal structure of the battery. Dimensions include terminal width (A0), terminal thickness (B1), and overall height (K0).

Top View (Bottom): Shows the battery terminals (P0, P1, P2) and the main body. Dimensions include terminal spacing (P0, P1, P2), terminal height (E), and terminal width (B0).

Side View (Bottom): Shows the battery profile. Dimensions include terminal height (T), terminal width (B0), terminal thickness (B1), and overall height (K0).

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	-	-	12.30	-		0.482
E	1.65	1.75	1.85	0.065	0.069	0.073
F	5.45	5.50	5.55	0.215	0.217	0.219
D0	1.50	1.55	1.60	0.059	0.061	0.063
D1	1.50	-	-	0.059	-	-
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.95	2.00	2.05	0.077	0.079	0.081
10P0	39.80	40.00	40.20	1.567	1.575	1.583
A0	6.85	6.95	7.05	0.269	0.273	0.276
B0	7.15	7.25	7.35	0.280	0.284	0.288
K0	1.95	2.05	2.15	0.076	0.080	0.084
T	0.20	0.25	0.30	0.008	0.010	0.012

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
SOT-223	TAPING	4,000	40,000	13 inch

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