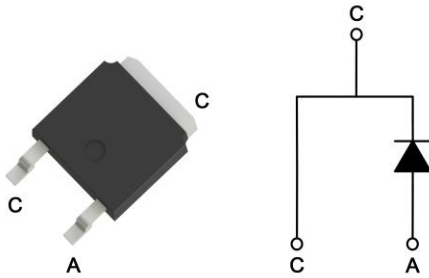


Product Summary

V_{RRM}	650	V
$I_F @ T_C=128^\circ\text{C}$	6	A
$Q_C @ V_R=400\text{V}$	18	nC

TO-252-2L



Ordering Information

Device	Package	Shipping
SCD06065J2-0-T3-G	TO-252-2L	2500pcs / Tape & Reel

0: Product rank, zero for no rank products.

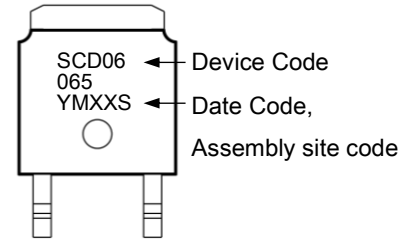
T3: Packing spec, T3 : 2500pcs / tape & reel, 13" reel

G: Environment friendly grade: S for RoHS compliant products, G for RoHS compliant and green compound products.

Features

- Negligible reverse recovery
- High surge current
- Positive temperature coefficient
- Pb-free lead plating and halogen-free

Marking



YMXX: Date Code Marking

Y: Year Code, the last digit of Christian year

M: Month Code

A: Jan	B: Feb	C: Mar	D: Apr	E: May	F: Jun
G: Jul	H: Aug	J: Sep	K: Oct	L: Nov	M: Dec

XX: Production Serial Number, 01~99

S: Assembly site code, Site 1: A

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit	
Repetitive Peak Reverse Voltage	V_{RRM}	650	V	
Continuous Forward Current @ $T_C=25^\circ\text{C}$	I_F	11.5	A	
Continuous Forward Current @ $T_C=79^\circ\text{C}$		9		
Continuous Forward Current @ $T_C=128^\circ\text{C}$		6		
Non-repetitive Forward Surge Current @ $T_C=25^\circ\text{C}$	*a I_{FSM}	48		
I^2t limit Value @ $T_C=25^\circ\text{C}$, $t_p=10\text{ms}$	I^2t	11.5	A^2s	
Total Power Dissipation	P_D	$T_C=25^\circ\text{C}$	50	W
		$T_C=110^\circ\text{C}$	22	
		$T_A=25^\circ\text{C}$ *b	3.5	
		$T_A=110^\circ\text{C}$ *b	1.5	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+175	$^\circ\text{C}$	
Steady State Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3	$^\circ\text{C/W}$	
Steady State Thermal Resistance, Junction-to-Ambient	*b $R_{\theta JA}$	43		

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
V_R	650	-	-	V	$I_R=50\mu\text{A}$
V_F	-	1.34	1.6	V	$I_F=6\text{A}$, $T_J=25^{\circ}\text{C}$
	-	1.78	-		$I_F=6\text{A}$, $T_J=175^{\circ}\text{C}$
I_R	-	0.68	50	μA	$V_R=650\text{V}$, $T_J=25^{\circ}\text{C}$
	-	4.2	-		$V_R=650\text{V}$, $T_J=175^{\circ}\text{C}$
Dynamic					
C_J	-	328	-	pF	$V_R=0\text{V}$, $f=1\text{MHz}$
	-	38	-		$V_R=200\text{V}$, $f=1\text{MHz}$
	-	37	-		$V_R=400\text{V}$, $f=1\text{MHz}$
Q_C	-	18	-	nC	$V_R=400\text{V}$, $f=1\text{MHz}$
E_C	-	3.1	-	μJ	$V_R=400\text{V}$, $f=1\text{MHz}$

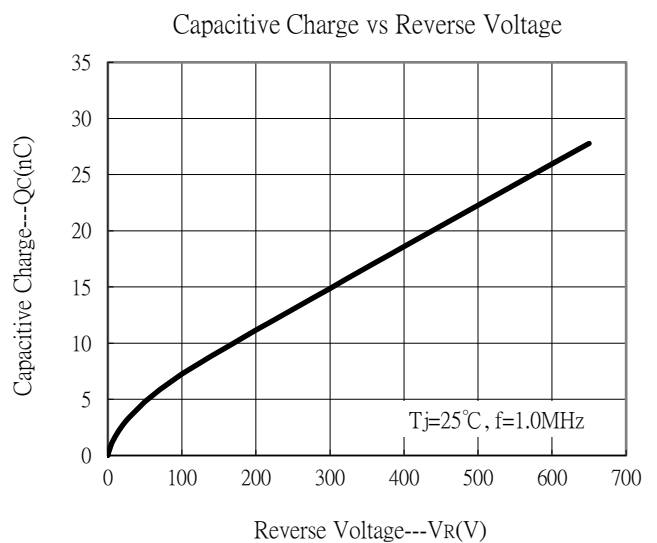
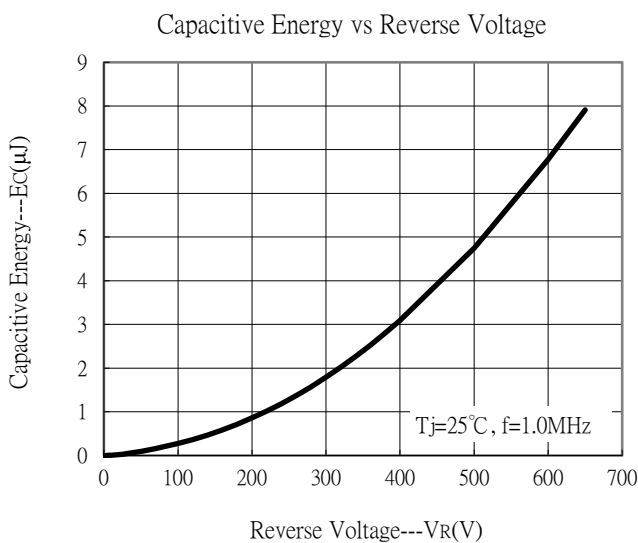
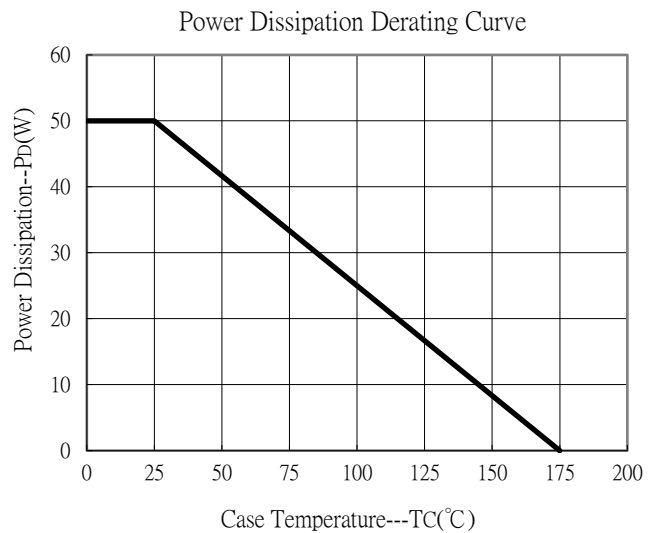
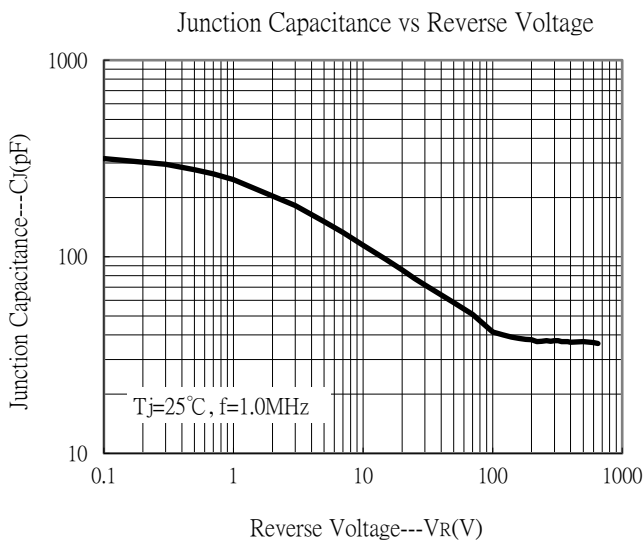
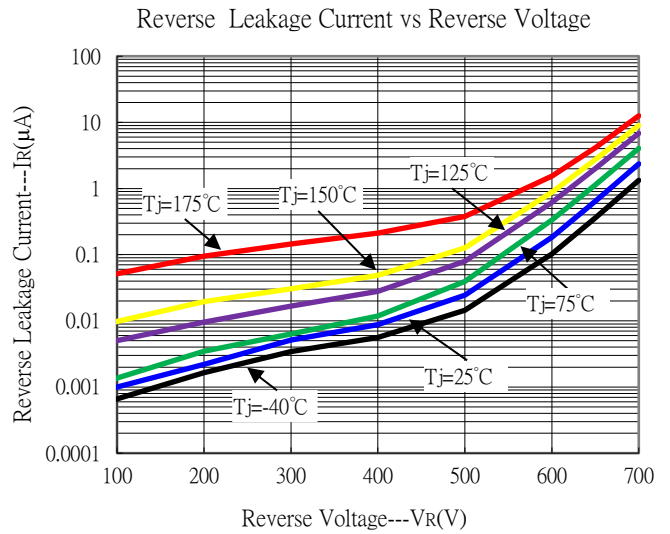
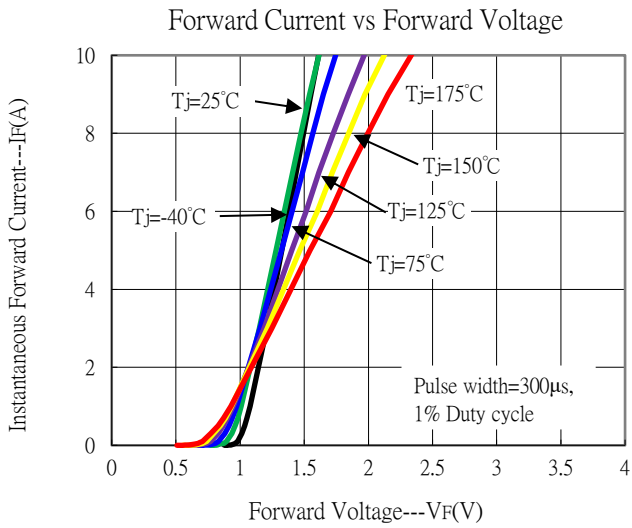
Note:

*a. Square wave, $t_p=10\text{ms}$.

*b. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design.

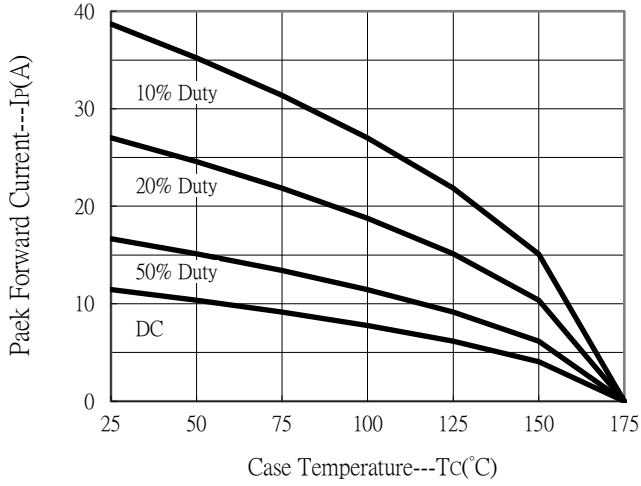
*c. Pulse Test : Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

Typical Characteristics

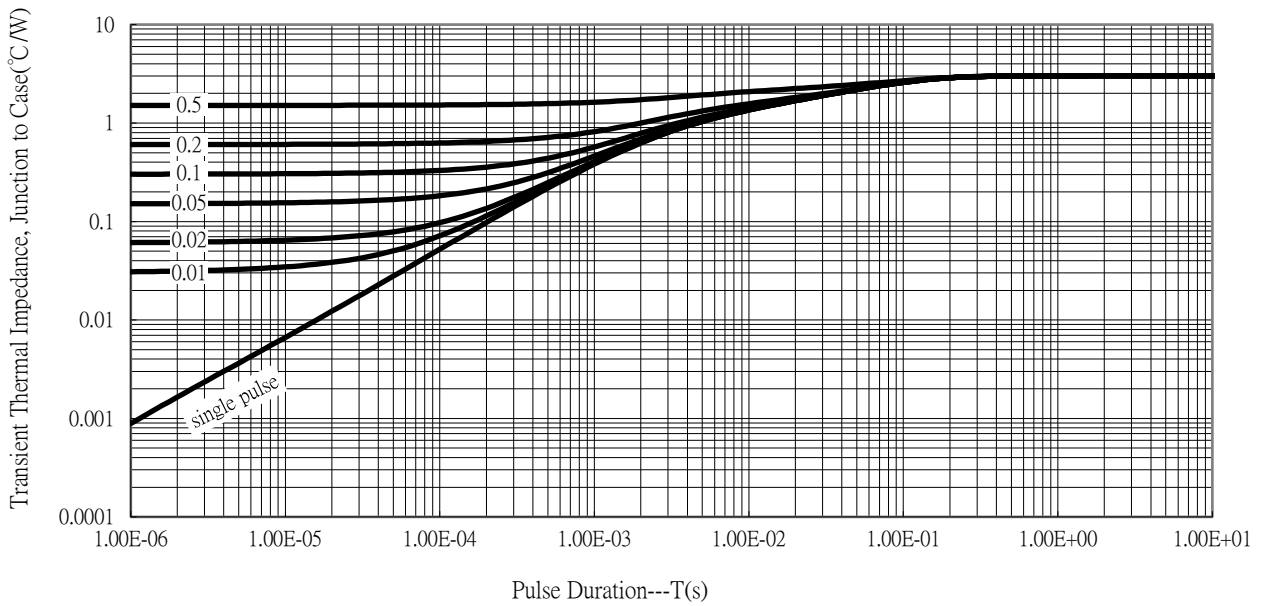


Typical Characteristics (Cont.)

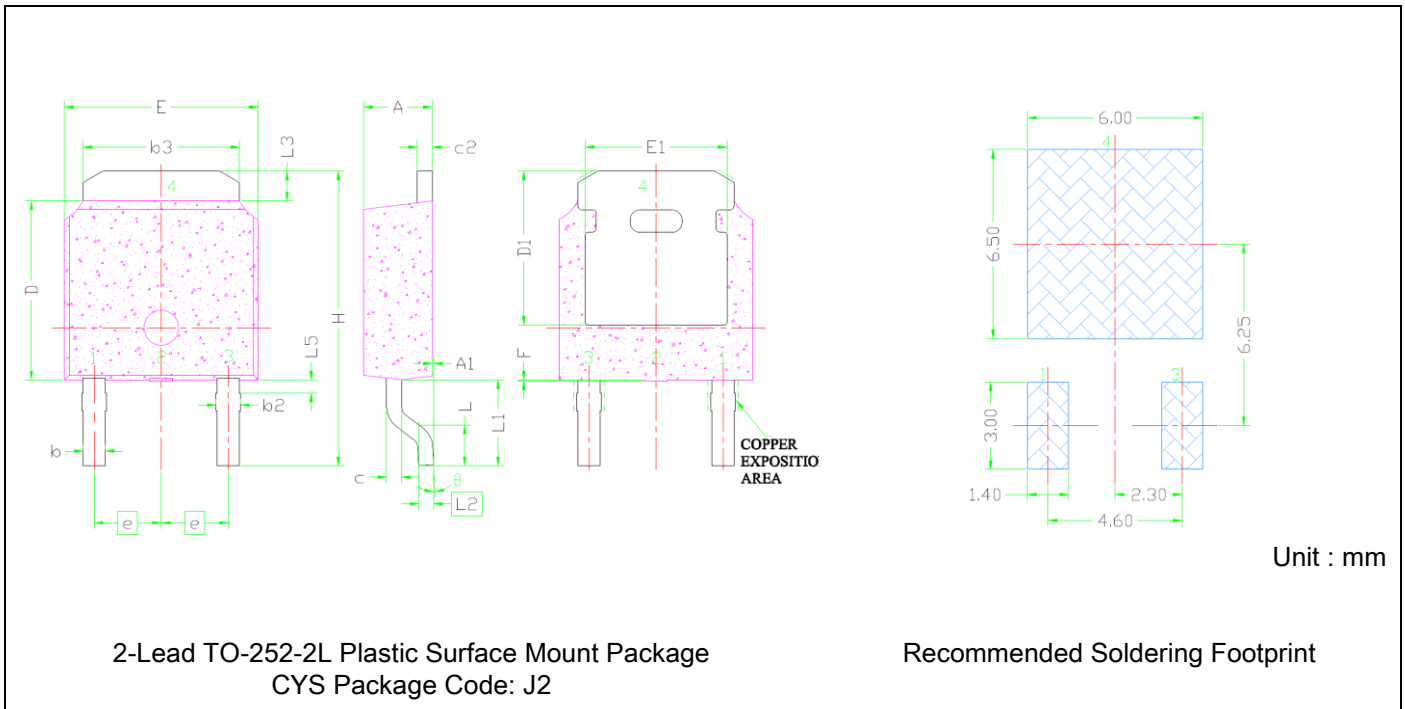
Peak Forward Current vs Case Temperature



Typical Transient Thermal Impedance



TO-252-2L Dimension



DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
E	6.400	6.731	0.252	0.265	b3	5.210	5.460	0.205	0.215
L	1.400	1.770	0.055	0.070	e	2.286	BSC	0.090	BSC
L1	2.743	REF	0.108	REF	A	2.200	2.380	0.087	0.094
L2	0.508	BSC	0.020	BSC	A1	0.000	0.127	0.000	0.005
L3	0.890	1.270	0.035	0.050	c	0.460	0.600	0.018	0.024
L5	-	-	-	-	c2	0.460	0.580	0.018	0.023
D	6.000	6.223	0.236	0.245	D1	5.210	-	0.205	-
H	9.400	10.400	0.370	0.409	E1	4.400	-	0.173	-
b	0.640	0.880	0.025	0.035	F	-	0.450	-	0.018
b2	0.770	1.140	0.030	0.045	θ	0°	10°	0°	10°

Note:

- Controlling dimension: millimeters.
- Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
- If there is any question with packing specification or packing method, please contact your local CYStek sales office.

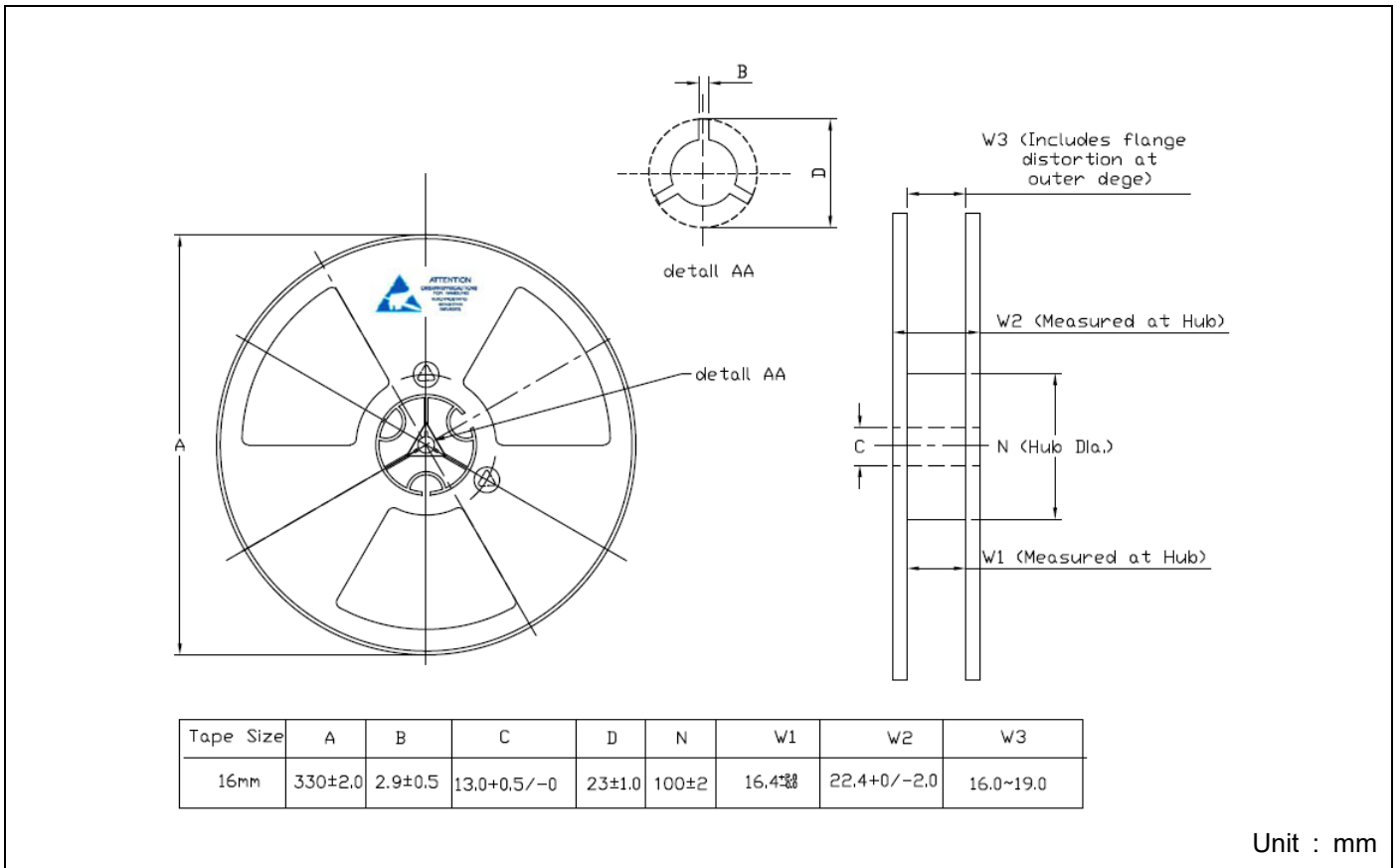
Material:

- Lead: pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

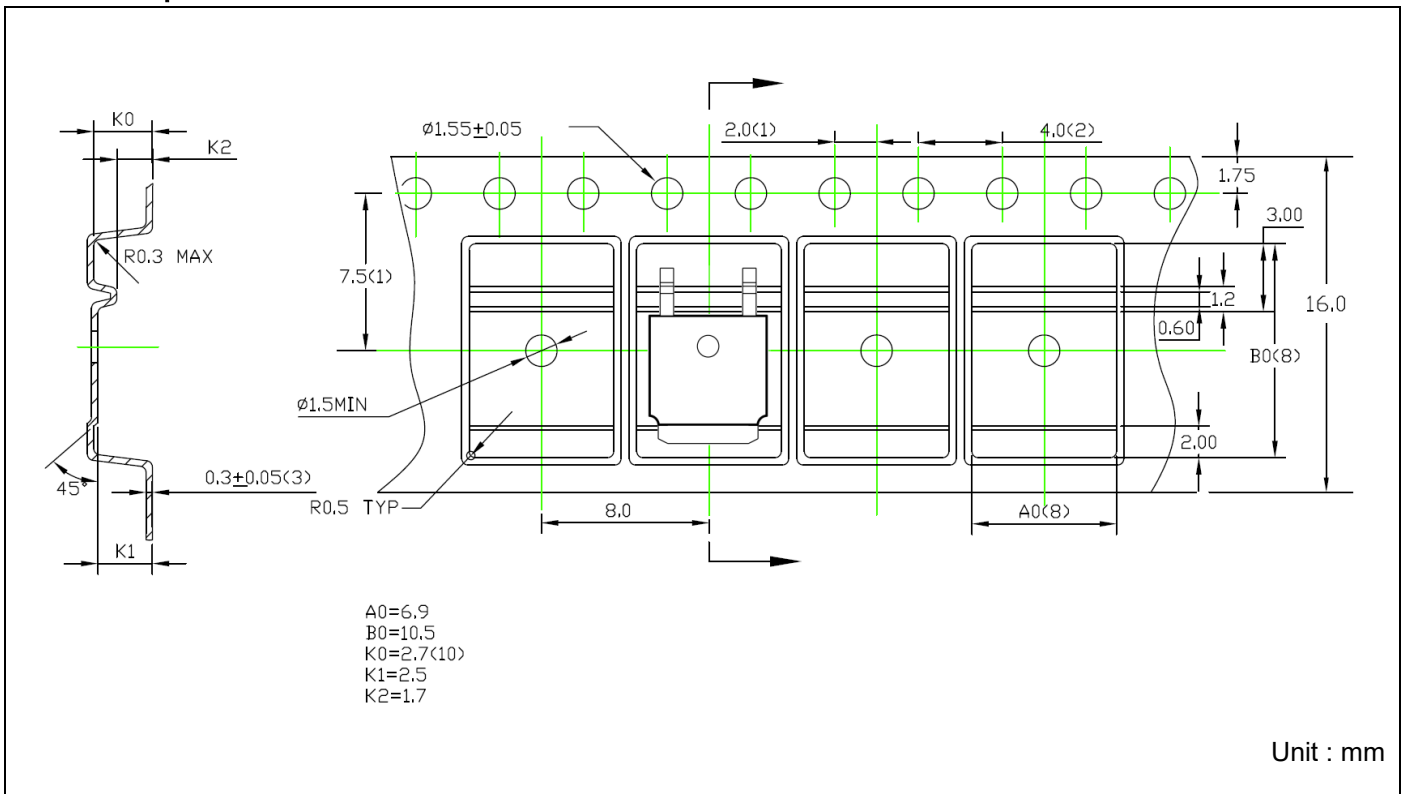
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Reel Dimension



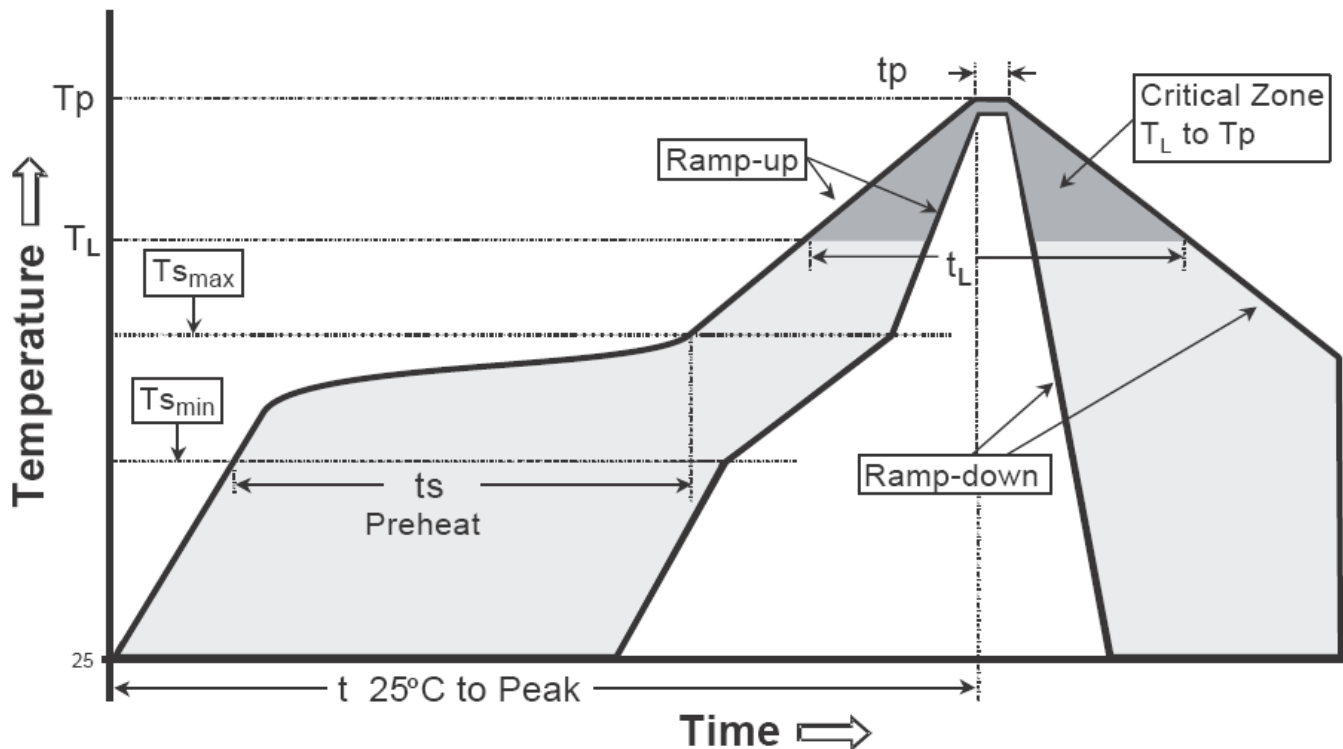
Carrier Tape Dimension



Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T _L)	183°C	217°C
- Time (t _L)	60-150 seconds	60-150 seconds
Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.