SEMICONDUCTOR

DATA SHEET

YSBLCxxC

Pb H

LOW CAPACITANCE TVS DIODE ARRAY

APPLICATIONS

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Peripherals
- USB Interface

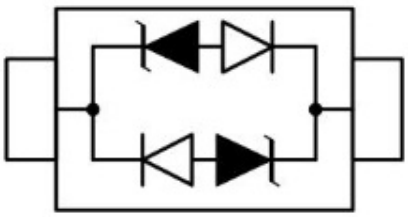
SOD-323



IEC COMPATIBILITY

- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50 η s)
- IEC61000-4-5 (Lightning) 12A (8/20μs)

PIN CONFIGURATION



FEATURES

- 350 Watts Peak Pulse Power per Line (tp=8/20μs)
- Protects one I/O line (bidirectional)
- Low clamping voltage
- Working voltages: 3V, 5V, 8V, 12V, 15V, 24V
- Low leakage current

MECHANICAL CHARACTERISTICS

- JEDEC SOD-323 Package
- Molding Compound Flammability Rating : UL 94V-O
- Weight 5 Millgrams (Approximate)
- Quantity Per Reel : 3,000pcs
- Reel Size : 7 inch
- Lead Finish : Lead Free

DEVICE CHARACTERISTICS

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MAXIMUM RATINGS (@ 25℃ Unless Otherwise Specified)			
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp=8/20μs waveform)	P_{PP}	350	Watts
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Operating Temperature Range	T_J	-55 ~ 150	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃

ELECTRICAL CHARACTERISTICS PER LINE (@ 25℃ Unless Otherwise Specified)										
PART NUMBER	DEVICE MARKING	V_{RWM} (V) (max.)	V_B (V) (min.)	I_T (mA)	V_C @1A (max.)	V_C (max.)	V_C (@A)	I_R (μA) (max.)	C_T 1 (pF) (typ.)	C_J 2 (pF) (typ.)
YSBLC03C	CC	3.3	4.0	1	7.50	13.9	8	40	1.0	0.4
YSBLC05C	AC	5.0	6.0	1	9.80	18.3	8	5	1.0	0.4
YSBLC08C	BC	8.0	8.5	1	13.40	18.5	8	2	1.0	0.4
YSBLC12C	DC	12.0	13.3	1	19.00	28.6	6	1	1.0	0.4
YSBLC15C	EC	15.0	16.7	1	24.00	31.8	5	1	1.0	0.4
YSBLC24C	HC	24.0	26.7	1	43.00	56.0	3	1	1.0	0.4

Note:

1.The Total capacitance, CT of the product @ F=1MHZ, applied 0VDC.

2.The Total capacitance, CJ of the single Dice @ F=1MHZ, applied 0VDC.

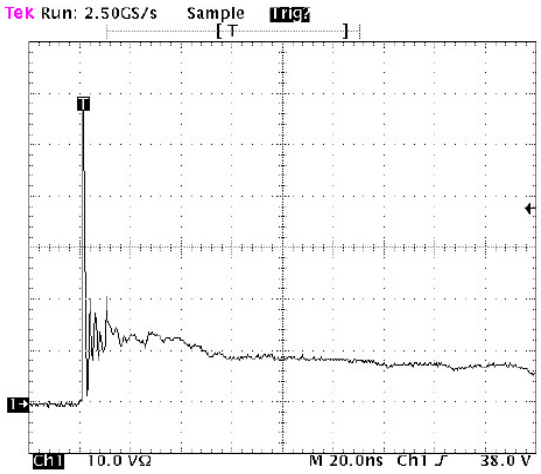


Figure 1. ESD Clamping Voltage Screenshot Positive 8 kV contact per IEC 61000-4-2

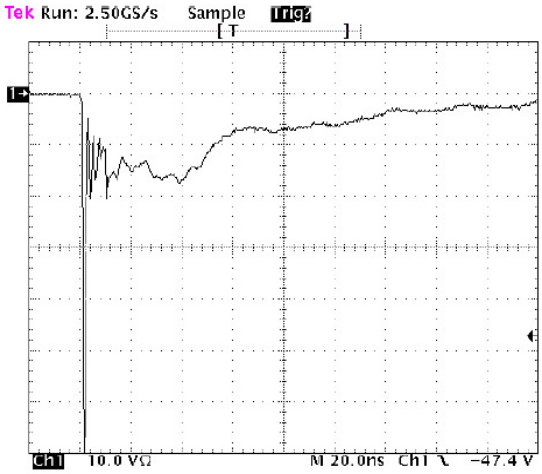
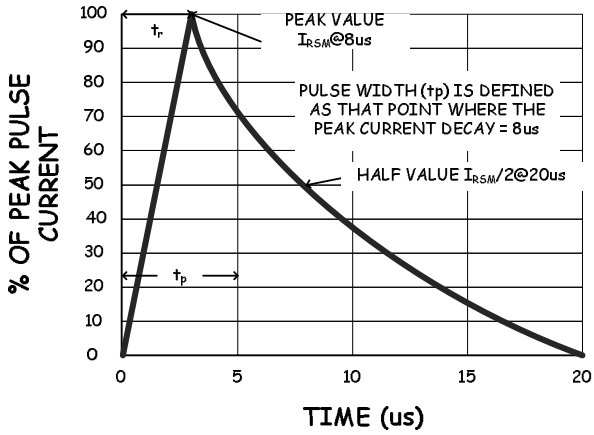


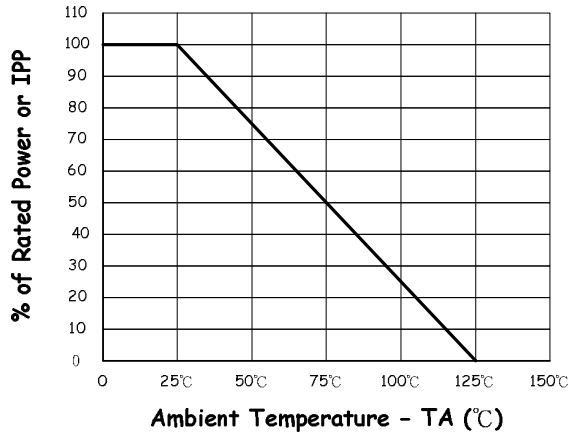
Figure 2. ESD Clamping Voltage Screenshot Negative 8 kV contact per IEC 61000-4-2

DEVICE CHARACTERISTICS

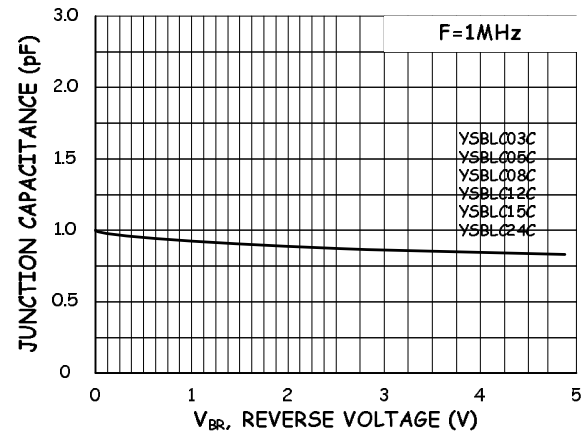
YSBLCxxC



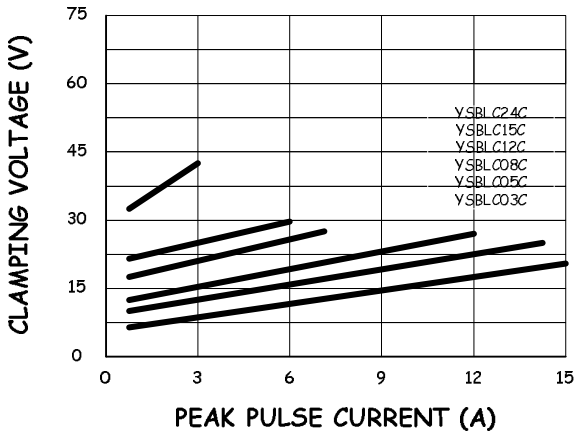
8/20 μs Pulse Waveform



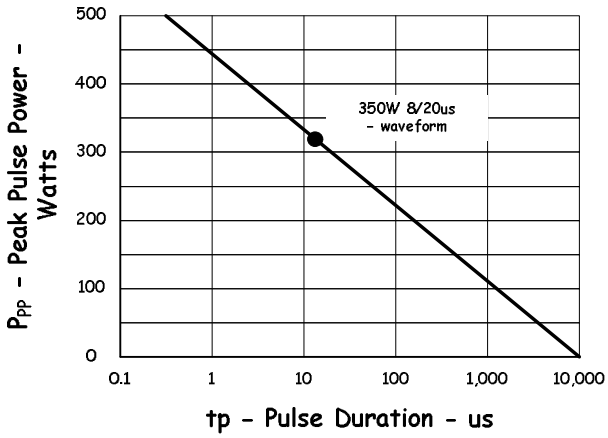
Power Derating Curve



Normalized Capacitance vs. Reverse Voltage



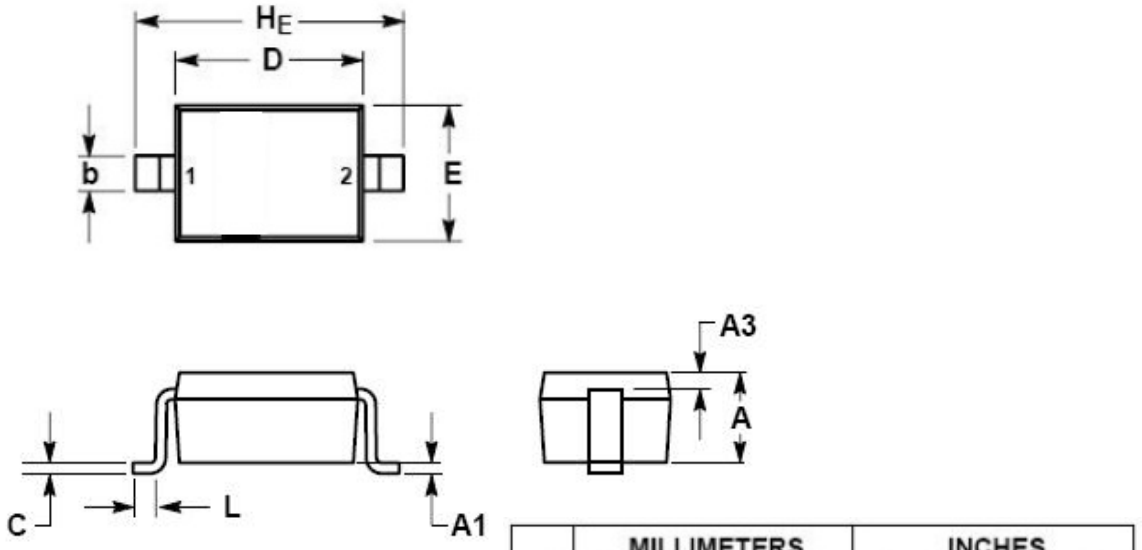
Clamping Voltage vs. Peak Pulse Current



Peak Pulse Power vs Pulse Time

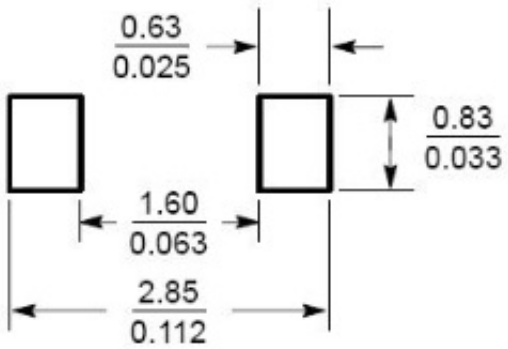
PACKAGE OUTLINE & DIMENSIONS

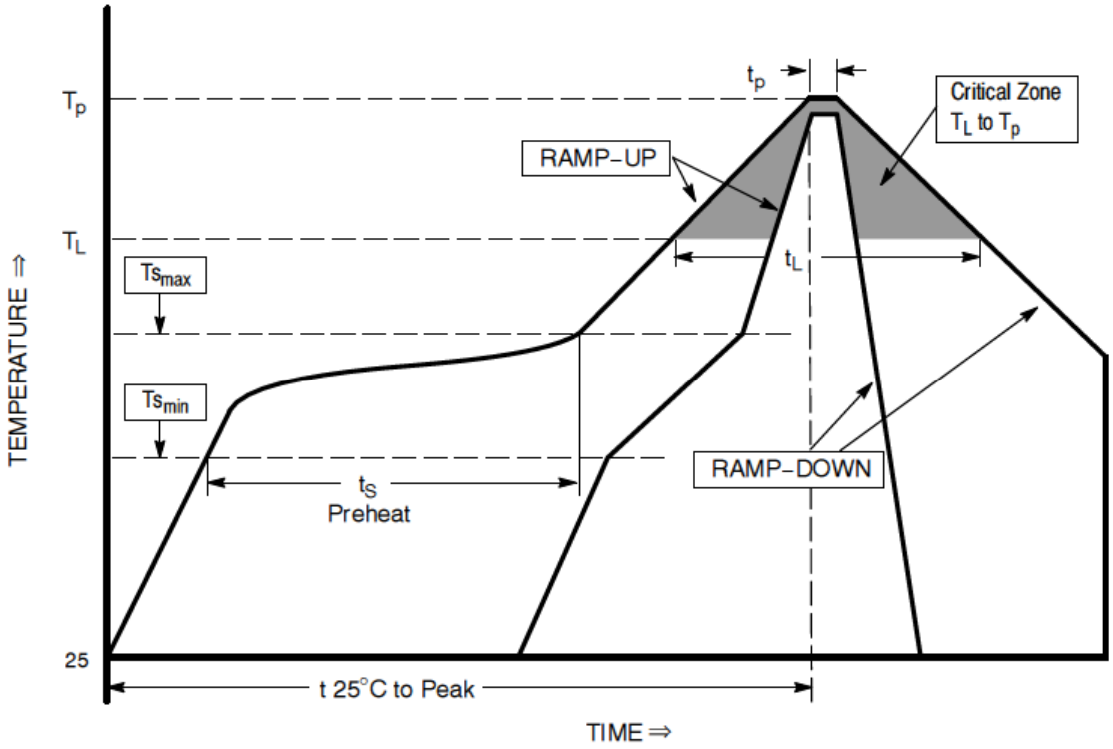
YSBLCxxC



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.031	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A3		0.15 REF			0.006 REF	
b	0.25	0.32	0.4	0.010	0.012	0.016
C	0.089	0.12	0.177	0.003	0.005	0.007
D	1.60	1.70	1.80	0.062	0.066	0.070
E	1.15	1.25	1.35	0.045	0.049	0.053
L	0.08			0.003		
H_E	2.30	2.50	2.70	0.090	0.098	0.105

* SOLDERING FOOTPRINT





Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts_{max} to Tp)	3°C/second max
Preheat Temperature Min (Ts_{min}) Temperature Max (Ts_{max}) Time (ts_{min} to ts_{max})	 150°C 200°C 60–180 seconds
Time maintained above Temperature (T_T) Time (t_T)	 217°C 60–150 seconds
Peak Classification Temperature (Tp)	260°C +5/–0
Time within 5°C of actual Peak Temperature (tp)	20–40 seconds
Ramp-Down Rate	6°C/second max
Time 25°C to Peak Temperature	8 minutes max

Note : According to J-STD-020D.

1、Solder Composition：

Composition	Sn	Pb	Ag	Sb	Cu	Bi	Zn	Fe	Al	As	Cd
96.5Sn3.0Ag0.5Cu	rest	<0.1	3.0 ±0.2	<0.12	0.5 ±0.05	<0.1	<0.002	<0.02	<0.002	<0.03	<0.002

2、Solder Stick Parameter：

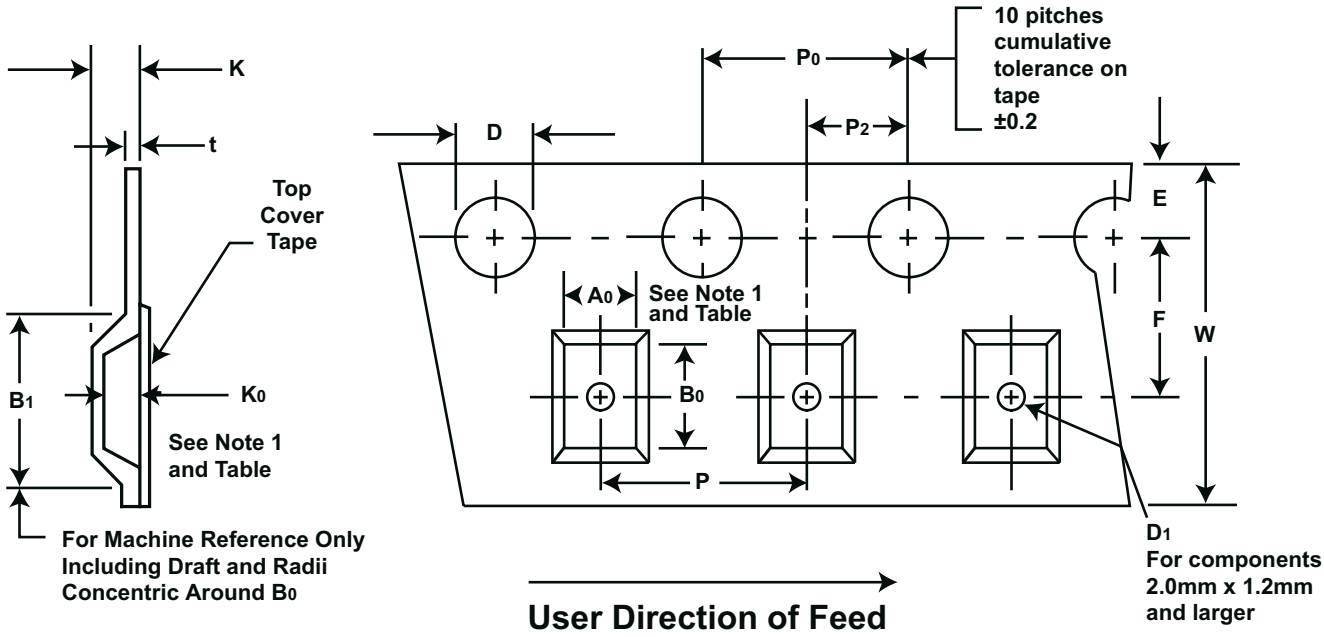
Liquid phase temp (℃)	221
Solid phase temp (℃)	216

Extension strength (kgf/mm^2)	3.7
Elongation	33

3、Solder Paste Parameter：

Item		Property		Testing Method
Liquid resistivity (Ω． m)		１×１０^{3}以上		JIS Z 3197 8.1.1 (1999)
Flux content (wt %)		10.5±0.03		JIS Z 3197 8.1.2(1999)
Halogen content (wt %)		0.07±0.02		JIS Z 3197 8.1.4.2.1(1999)
Copper mirror corrosion test		Accept		JIS Z 3197 8.1.4.2.3(1999)
Powder（u m）		GQ	G K	JIS Z 3284 Attach file 1
		Ball shape 10-38	Ball shape 20-45	
Melt point (℃)		216-221		DSC
Flux fluoride content		None		JIS Z 3284 Attach file 2
Insulate resistivity Ω	40℃ 90%	>1×10^{12}		JIS Z 3284 Attach file 3
	85℃ 85%	>5×10^8		
Flux residuum corrosion test		No corrosion		JIS Z 3284 Attach file 4
Printing test		GQ	GK	JIS Z 3284 Attach file 5
		0.4mm pitch	0.5mm pitch	
Visicosity (Pa.s)		180±20		JIS Z 3284 Attach file 6
Printing cave		None 0.2mm solder bridge		JIS Z 3284 Attach file 7
Heating cave		None 0.2mm solder bridge		JIS Z 3284 Attach file 8
Adhesive	Beginning	１． ＞０ Ｎ		JIS Z 3284 Attach file 9
	After 24 hrs.	１． ＞０ Ｎ		
Dewetting		2 grade（copper plate）		JIS Z 3284 Attach file 10
Solder ball test	Beginning	１－３ grade		JIS Z 3284 Attach file 11
	After 24 hrs.	１－３ grade		
Residuum adhesive after soldering		None		JIS Z 3284 Attach file 12
Transfer test		None		JIS Z 3284 Attach file 13

SURFACE MOUNT PACKAGING



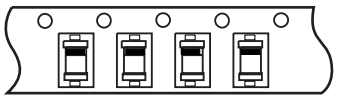
EMBOSSED TAPE

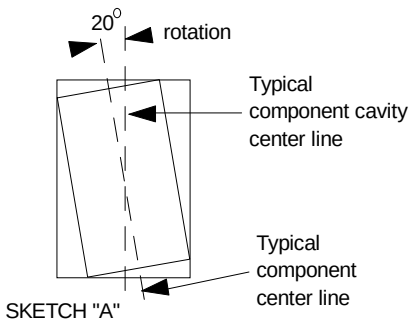
ALL DIMENSION IN MILLIMETERS

Tape Size	D	E	Po	t(Max)	Ao Bo Ko	Constant Dimensions
8, 12 , 16 mm	1.55+0.1 −0.0	1.75±0.10	4.0±0.10	0.400	See Note 1	

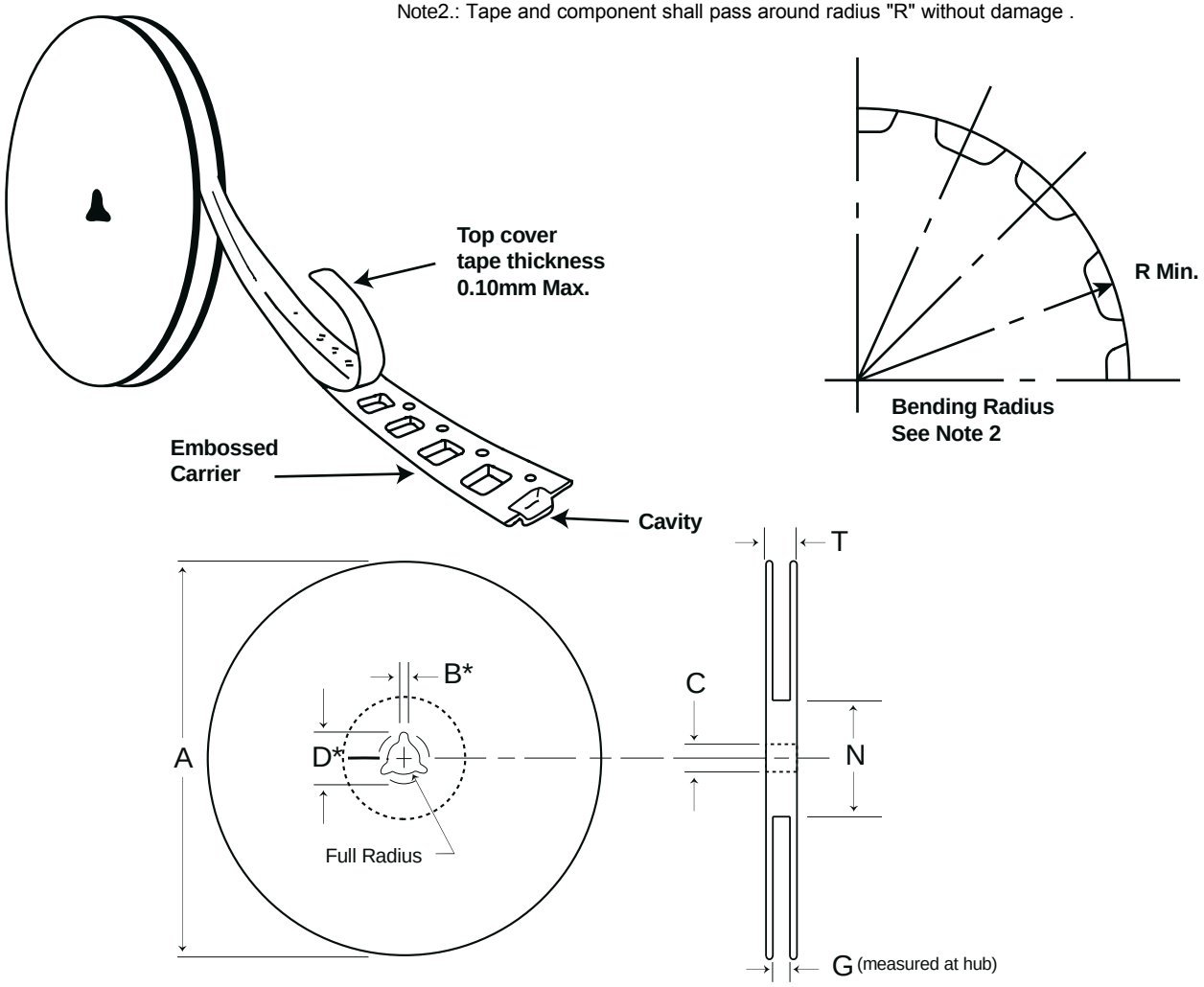
Product Type	Tape Size	B1 Max.	D1 Min.	F	K Max.	P2	R	W	P
SOT-23/323/363 SOD-123/323	8mm	4.5	1.0	3.5±0.05	2.4	2.0±0.05	25	8.0±0.3	4.0±0.1
SMA SMF	12mm	8.2	1.5	5.5±0.05	4.5	2.0±0.05	30	12.0±0.3	8.0±0.1
SMB MINI DIP									
SMC	16mm	12.1		7.5±0.1	3.29	2.0±0.1	40	16.0±0.3	8.0±0.1
DFS					3.70	4.0±0.1	50		12.0±0.1

Note1.: A0B0K0 are determined by component size. The clearance between the component and the cavity must be within 0.05(.002) min. to 0.50 (.020) max. for 8 mm tape. 0.05(.002) min. to 0.65 (.025) max. for 12mm tape. 0.15 (0.006) min. to 0.90 (.035) max. for 16mm tape and 0.05(0.002) min. to 1.00 (.039) max. for 24 mm tape and larger. the component cannot rotate more than 20° within the determined cavity,see sketch "A" below





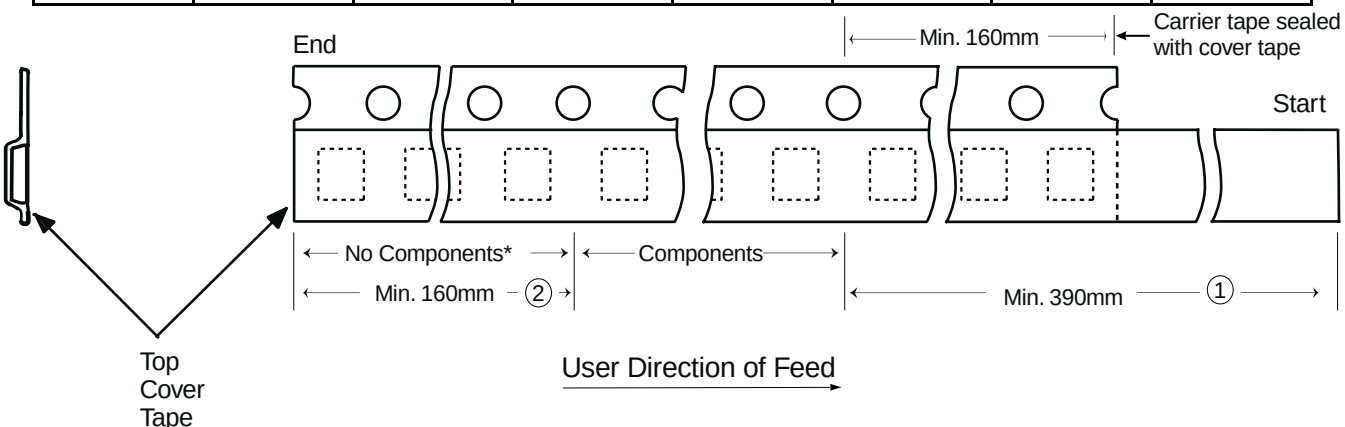
Note2.: Tape and component shall pass around radius "R" without damage .



* Drive spokes optional. If used, dimensions with asterisks apply.

ALL DIMENSION IN MILLMETERS

Tape Size	A Max.	B* Max.	C	D* Max.	N Min.	G	T Max.
8mm	178	1.5	13.0±0.2	20.2	50	8.4 +1.5 -0.0	14.4
12mm	330	1.5	13.0±0.2	20.2	50	12.4 +2.0 -0.0	18.4
16mm	330	1.5	13.0±0.2	20.2	50	16.4 +2.0 -0.1	22.4



Notes:
1. There shall be a leader of 230mm [9.05] minimum which may consist of carrier and/or cover tape or a start tape followed by a minimum of 160mm [6.30] of empty carrier tape sealed with cover tape.
2. There shall be a trailer of 160mm [6.30] minimum of empty carrier tape sealed with cover tape. The entire carrier tape must release from the reel hub as the last portion of the tape unwinds from the reel without damage to the carrier tape and the remaining components in the cavities.

PACKAGING

BOX SIZE:

PRODUCTS OUTLINE	DIMENSION (mm)			Q'TY PER BOX (PER REEL)
	A	B	C	
SOT-23/323/363 **SOD-123/323**	187	187	70	12000 (3000)
SMA/SMF	340	340	40	15000
SMB **MINI DIP** **SMC**				6000 (3000)
DFS				3000 (1500)

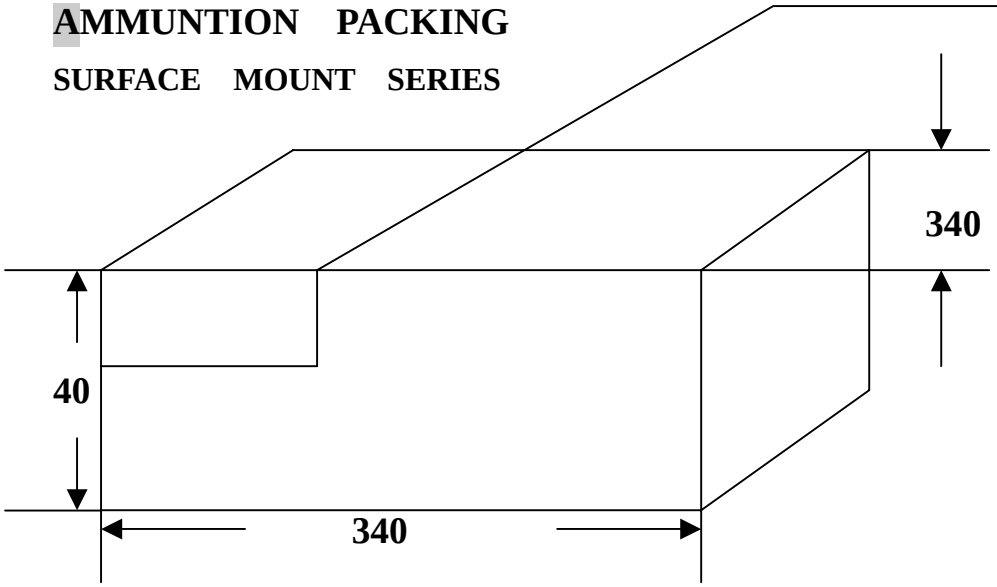
TUBE SIZE:

PRODUCTS OUTLINE	PACKAGEING SIZE (mm)		Q'TY PER BOX (PER TUBE)
	TUBE	BOX	
DFS	444*15*5.9	490*155*145	9000 (50)

LABEL TYPE

AMMUNTION PACKING

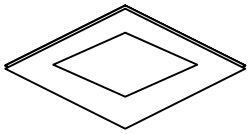
SURFACE MOUNT SERIES

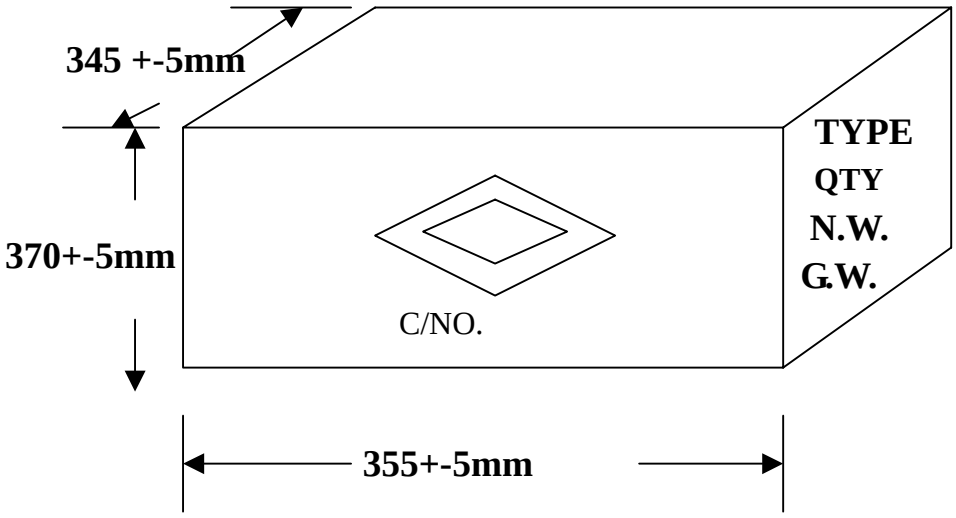


Box Dimensions :mm
Quantity per Box :7.5Kpcs/Roll,2Rolls/Box,15Kpcs/Box

CARTON

SHIPPING MARK





SIDEMARK

TYPE:
QTY:
N.W.:
G.W.:

Box dimensions: mm
Quantity per Box:15kpcs/Box. 8Box/carton,120kpcs/carton