

# SA\*\*\*

## GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

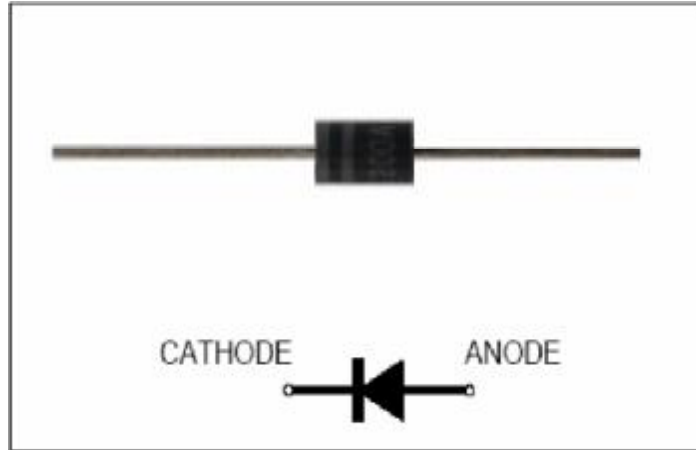
VOLTAGE - 5.0 TO 170 Volts

500Watt Peak Power

3.0 Watt Steady State

### Feature

- \* Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- \* Glass passivated chip junction in DO-15 package
- \* 500W surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time: typically less than 1.0 ps from 0 volts to BV min
- \* Typical IR less than 1 $\mu$ A above 10V
- \* High temperature soldering guaranteed: 260 /10 seconds/.375", (9.5mm) lead length/5lbs., (2.3kg) tension



We declare that the material of product compliance with ROHS requirements

### Mechanical Data

**Case:** JEDEC DO-15 molded plastic

**Terminals:** Axial leads, solderable per MIL-STD-202, Method 208

**Polarity:** Color band denoted cathode except Bipolar

**Mounting Position:** Any

**Weight:** 0.015 ounce, 0.4 gram

### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types SA5.0A thru types SA170A

Electrical characteristics apply in both directions. marking code is all type.

### Electrical Characteristic

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

### 1. Maximum & Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $T_P=1\text{ms}$ (Note 1)	$P_{PPM}$	Minimum 500	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ Lead Lengths .375", (9.5mm) (Note 2)	$P_{M(AV)}$	3.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(JECED Method) (Note 3)	$I_{FSM}$	70	Amps
Operating Temperature Range	$T_J$	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +175	$^\circ\text{C}$

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.
2. Mounted on Copper Leaf area of 1.57in<sup>2</sup>(40mm<sup>2</sup>).
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.

## SA\*\*\*

UNI-DIRECTIONAL PART NUMBER	REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @IT	BREAKDOWN VOLTAGE VBR (V) MAX. @IT	TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @IPP VC (V)	MAXIMUM PEAK PULSE CURRENT IPPM (Amps)	REVERSE LEAKAGE @VRWM IR (uA)
SA5.0	5.0	6.4	7.3	10	9.6	52	600
SA5.0A	5.0	6.4	7.0	10	9.2	54.3	600
SA6.0	6.0	6.7	8.2	10	11.4	43.9	600
SA6.0A	6.0	6.7	7.4	10	10.3	48.5	600
SA6.5	6.5	7.2	8.8	10	12.3	40.7	400
SA6.5A	6.5	7.2	8.0	10	11.2	44.7	400
SA7.0	7.0	7.8	8.6	10	13.3	37.8	150
SA7.0A	7.0	7.8	8.6	10	12	41.7	150
SA7.5	7.5	8.3	10.2	1	14.3	35	50
SA7.5A	7.5	8.3	9.2	1	12.9	38.8	50
SA8.0	8.0	8.9	10.9	1	15	33.3	25
SA8.0A	8.0	8.9	9.8	1	13.6	36.7	25
SA8.5	8.5	9.4	11.5	1	15.9	31.4	10
SA8.5A	8.5	9.4	10.4	1	14.4	34.7	10
SA9.0	9.0	10.0	12.2	1	16.9	29.5	1
SA9.0A	9.0	10.0	11.1	1	15.4	32.5	1
SA10	10	11.1	13.6	1	18.8	26.6	1
SA10A	10	11.1	12.3	1	17	29.4	1
SA11	11	12.2	14.9	1	20.1	24.9	1
SA11A	11	12.2	13.5	1	18.2	27.4	1
SA12	12	13.3	16.3	1	22	22.7	1
SA12A	12	13.3	14.7	1	19.9	25.1	1
SA13	13	14.4	17.6	1	23.8	21	1
SA13A	13	14.4	15.9	1	21.5	23.2	1
SA14	14	15.6	19.1	1	25.8	19.4	1
SA14A	14	15.6	17.2	1	23.2	21.5	1
SA15	15	16.7	20.4	1	26.9	18.8	1
SA15A	15	16.7	18.5	1	24.4	20.6	1
SA16	16	17.8	21.8	1	28.8	17.6	1
SA16A	16	17.8	19.7	1	26	17.6	1
SA17	17	18.9	23.1	1	30.5	16.4	1
SA17A	17	18.9	20.9	1	27.6	16.1	1
SA18	18	20.0	24.4	1	32.2	15.5	1
SA18A	18	20.0	22.1	1	29.2	17.2	1
SA20	20	22.2	27.1	1	35.8	13.9	1
SA20A	20	22.2	24.5	1	32.4	15.4	1
SA22	22	24.4	29.8	1	39.4	12.7	1
SA22A	22	24.4	26.9	1	35.5	14.1	1
SA24	24	26.7	32.6	1	43	11.6	1
SA24A	24	26.7	29.5	1	38.9	12.8	1
SA26	26	28.9	35.3	1	46.6	10.7	1
SA26A	26	28.9	31.9	1	42.1	11.9	1
SA28	28	31.1	38.0	1	50	9.9	1
SA28A	28	31.1	34.4	1	45.4	11	1
SA30	30	33.3	40.7	1	53.5	9.3	1
SA30A	30	33.3	36.8	1	48.4	10.3	1
SA33	33	36.7	44.9	1	59	8.5	1
SA33A	33	36.7	40.6	1	53.3	9.4	1

### SA\*\*\*

UNI-DIRECTIONAL PART NUMBER	REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @IT	BREAKDOWN VOLTAGE VBR (V) MAX. @IT	TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @IPP VC (V)	MAXIMUM PEAK PULSE CURRENT IPPM (Amps)	REVERSE LEAKAGE @VRWM IR (uA)
SA36	36	40.0	48.9	1	64.3	7.8	1
SA36A	36	40.0	44.2	1	58.1	8.5	1
SA40	40	44.4	54.3	1	71.4	7.0	1
SA40A	40	44.4	49.1	1	64.5	7.8	1
SA43	43	47.8	58.4	1	76.7	6.5	1
SA43A	43	47.8	52.8	1	69.4	7.2	1
SA45	45	50.0	61.1	1	80.3	6.2	1
SA45A	45	50.0	55.3	1	72.7	6.9	1
SA48	48	53.3	65.1	1	85.5	5.8	1
SA48A	48	53.3	58.9	1	77.4	6.5	1
SA51	51	56.7	69.3	1	91.1	5.5	1
SA51A	51	56.7	62.7	1	82.4	6.1	1
SA54	54	60.0	73.3	1	96.3	5.2	1
SA54A	54	60.0	66.3	1	87.1	5.7	1
SA58	58	64.4	78.7	1	103	4.9	1
SA58A	58	64.4	71.2	1	93.6	5.3	1
SA60	60	66.7	81.5	1	107	4.7	1
SA60A	60	66.7	73.7	1	96.8	5.2	1
SA64	64	71.1	86.9	1	114	4.4	1
SA64A	64	71.1	78.6	1	103	4.9	1
SA70	70	77.8	95.1	1	125	4.0	1
SA70A	70	77.8	86.0	1	113	4.4	1
SA75	75	83.3	102.0	1	134	3.7	1
SA75A	75	83.3	92.1	1	121	4.1	1
SA78	78	86.7	106.0	1	139	3.6	1
SA78A	78	86.7	95.8	1	126	4.0	1
SA85	85	94.4	115.0	1	151	3.3	1
SA85A	85	94.4	104.0	1	137	3.6	1
SA90	90	100	122	1	160	3.1	1
SA90A	90	100	111	1	146	3.4	1
SA100	100	111	136	1	179	2.8	1
SA100A	100	111	123	1	162	2.8	1
SA110	110	122	149	1	196	2.6	1
SA110A	110	122	135	1	177	2.8	1
SA120	120	133	163	1	214	2.3	1
SA120A	120	133	147	1	193	2.0	1
SA130	130	144	176	1	231	2.2	1
SA130A	130	144	159	1	209	2.4	1
SA150	150	167	204	1	268	1.9	1
SA150A	150	167	185	1	243	2.1	1
SA160	160	178	218	1	287	1.7	1
SA160A	160	178	197	1	259	1.9	1
SA170	170	189	231	1	304	1.6	1
SA170A	170	189	209	1	275	1.8	1

For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.  
 For parts without A , the VBR is ±10%

# SA\*\*\*\*

## 2. Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Fig. 1-Peak Pulse Power Rating Curve

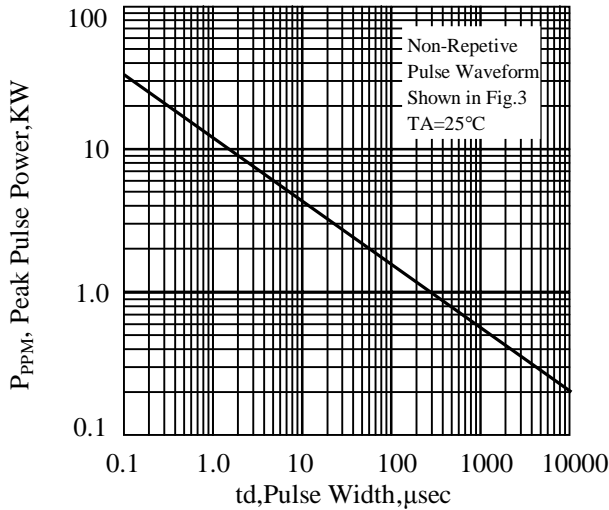


Fig. 2-Pulse Derating Curve

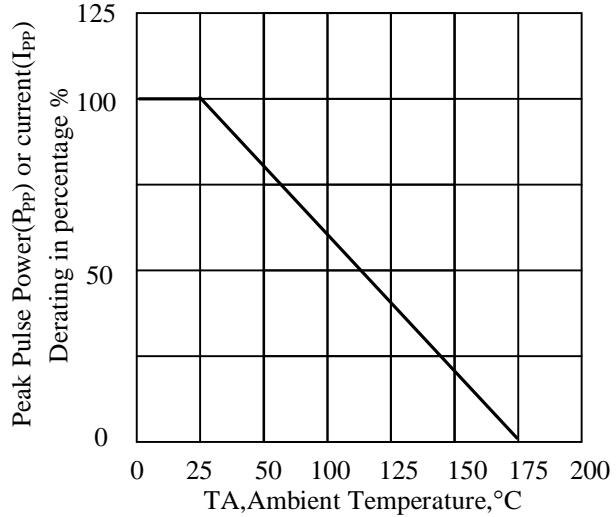


Fig. 3-Pulse Waveform

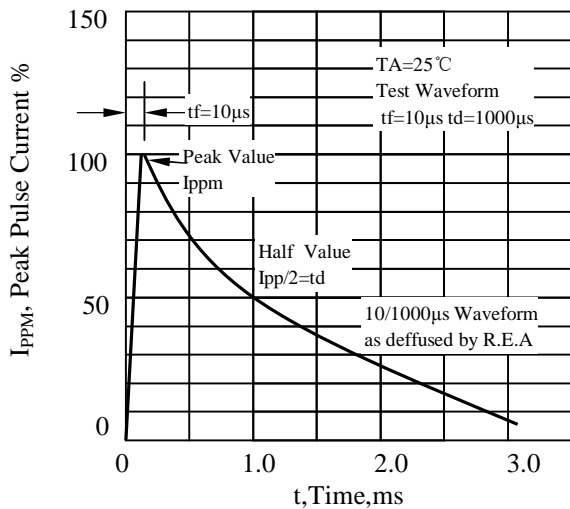


Fig. 4-Typical Junction Capacitance Unidirectional

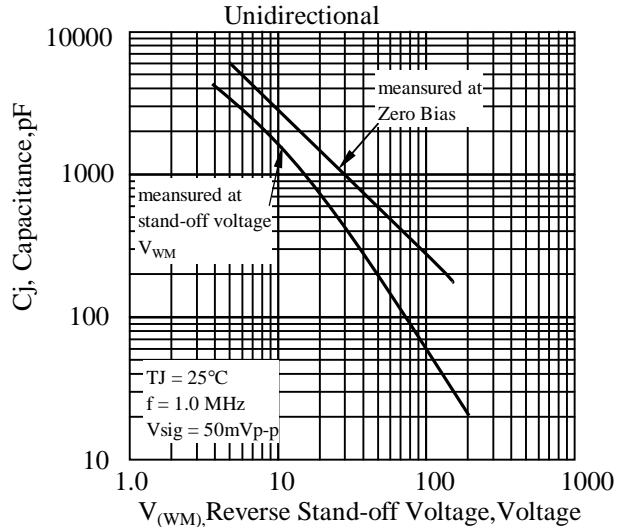


Fig. 5-Steady State Power Derating Curve

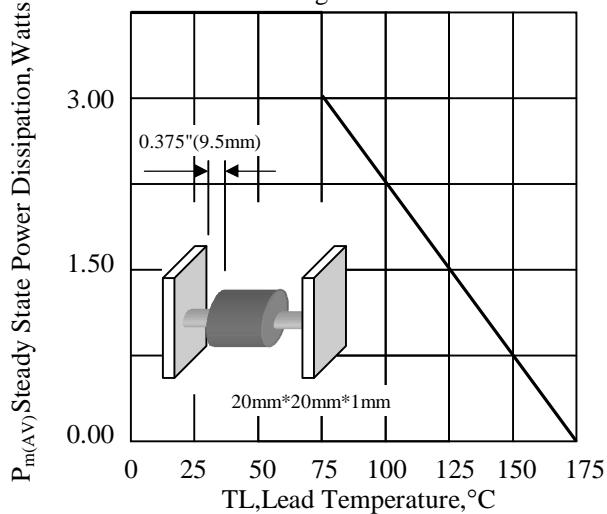
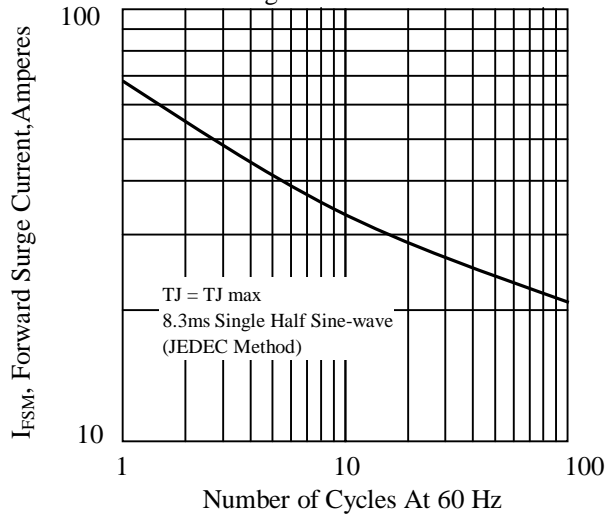
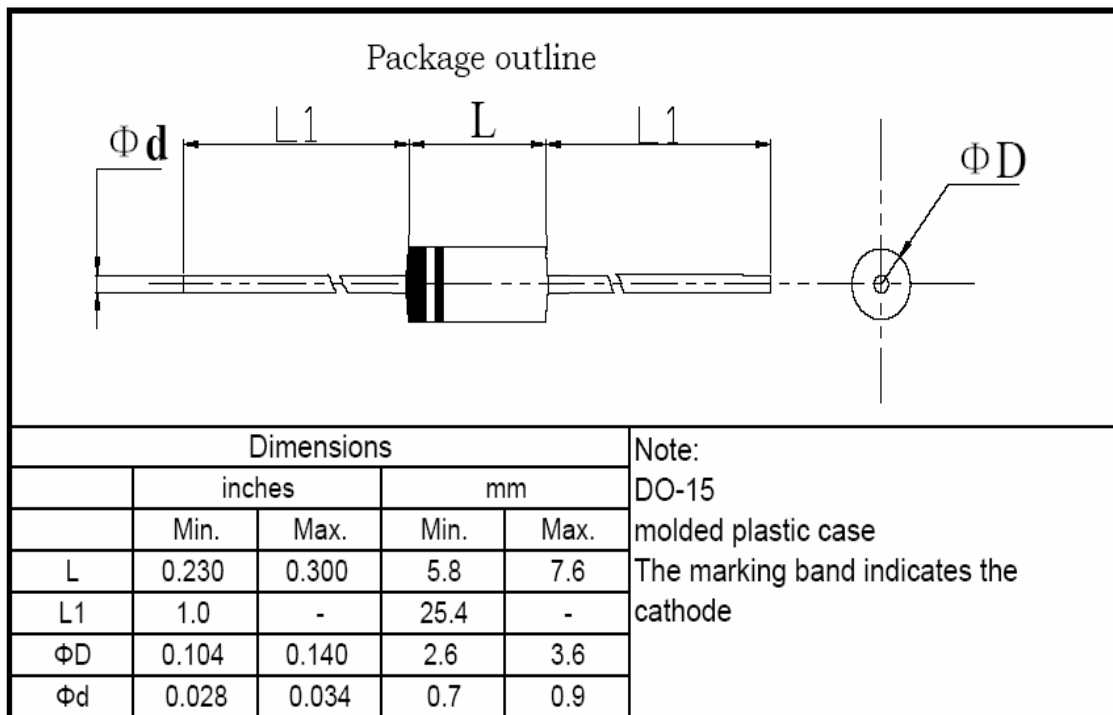


Fig. 6-Maximum Non-Repetitive Peak Forward Surge Current Unidirectional



## SA\*\*\*\*

### 3. dimension:



标题:

塑封生产线轴向产品包装规范

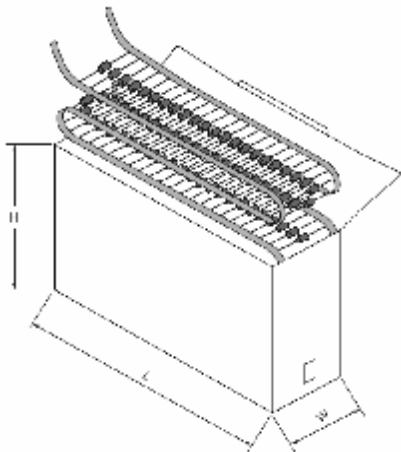
文件编号: WI-250

第 4 版 第 0 次修改

第 1 页

1 弹带盒装 ammo and box

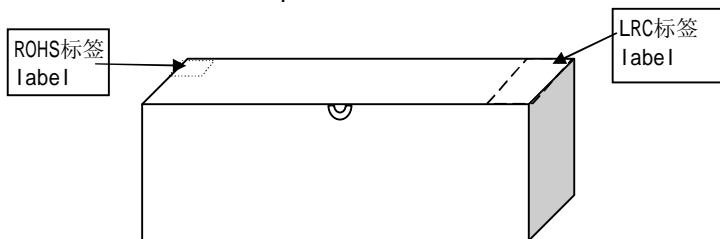
1.1. 弹带盒规格 ammo spec.



单位: mm

	L	W	H
T52	262±2	76±2	90±2
T42	262±2	64±2	90±2
T26	250±3	45±3	95±3

1.2 弹带内盒要求 inner box spec.



标题: <b>塑封生产线轴向产品包装规范</b>	文件编号: WI-250
	第 4 版 第 0 次修改
	第 2 页

1.4 标签要求 label spec.

1.4.1 LRC标签 LRC label

成型 FORMING \*\*\*\*\* ← 成型规格 forming spec.

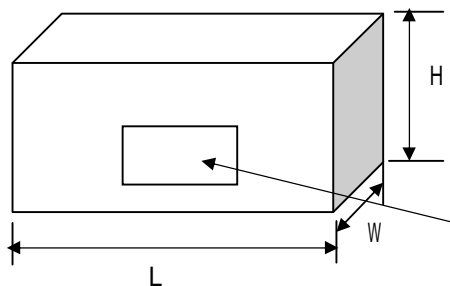
型号 TYPE \*\*\*\*\* ← LRC产品型号 type

重复峰压 (V) PRV (V)	****	← 产品重复峰压值 peak repetitive voltage
额定电流 (A) I <sub>o</sub> (A)	**	← 产品额定电流值 average output current
数量 (只) QTY (pcs)	****	← 产品数量 quantity
检验员 CHECKER	02	
日期: DATE:	*****	← 产品生产日期 date

1.4.2 环保标签 environmental protection label



2. 外箱规格 carton spec.



单位: mm

	L	W	H
T52	430±2	280±2	225±2
T42	410±2	285±2	300±2
T26	435±3	280±3	295±3

外箱标签cartoon label

3 按以上包装方式, 编带数量和外包装箱产品数量: typing and carton spec.

	塑封外型			
	A-405 & DO-41 & R-1	R-3	DO-15	DO-201AD
每根编带数量 quantity/ammo	3K	1.8K	2K(T52) 1.8K(T26)	0.8K
外箱数量 (T52编带) quantity/cartoon	30K	18K	20K	8.0K
外箱数量 (T26编带) quantity/cartoon	60K	36K	36K	-
外箱数量 (T42编带) quantity/cartoon	54K	32.4K	36K	-

标题:

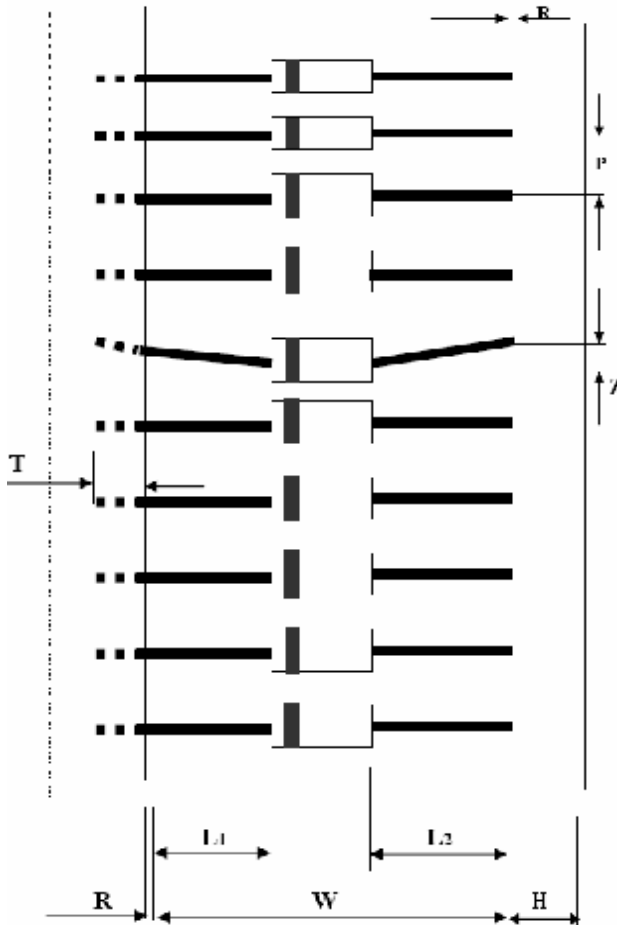
塑封生产线轴向产品包装规范

文件编号: WI-250

第 4 版 第 0 次修改

第 3 页

4 编带规格 brede spec



尺寸代号	编带尺寸 typing dimension					
	26/tape	35/tape	40/tape	42/tape	52/tape	52/tape#
W	26 0.0/+1.6	35 -1.0/+0.5	40 -1.0/+0.5	42 -1.0/+1.0	52 -1.0/+2.0	52 -1.0/+2.0
P	5±0.5	5±0.5	5±0.5	5±0.5	5±0.5	10±0.5
L1-L2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
H	6±1.0	6±1.0	6±1.0	6±1.0	6±1.0	6±1.0
Z	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
R	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
T	>3.5	>3.5	>3.5	>3.5	>3.5	>3.5

注: 52编带# 为DO-201AD编带规格 "52编带#" just for D0-201AD

1. 红白编带厚度为0.05mm; 两种胶带各自之间无明显色差; 编带要求均为胶带。  
The typing thickness is 0.05mm and color is obvious difference
2. 两端引带20~40cm. Typing lead over 20~40cm
3. 红色编带一端为二极管“负极”; 白色编带一端为二极管“正极”。  
red color is cathode ,white color is anode
4. 无卤 green epoxy compound (无卤产品才贴HF only)

**Green**



## SA\*\*\*\*

### 4. Update Record

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2010-4-11
2	调整储存温度为175度	周杰	2010-9-23
3	1.增加包装规范；2.调整厂标；	周杰	2010-9-24
4	具体说明产品印字为产品名称。	周杰	2012-5-9
5	修正结电容曲线	周杰	2012-8-15