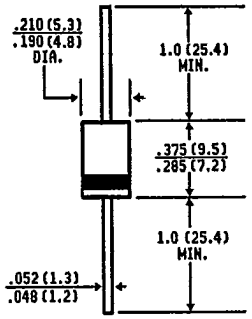
BY296P THRU BY299P

SOFT RECOVERY PLASTIC RECTIFIER

***VOLTAGE** - 100 to 800 Volts **CURRENT** - 2.0 Amperes*

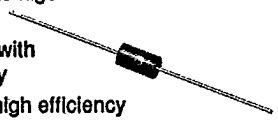
FEATURES

DO-201AD



Dimensions in inches and (millimeters)

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Void-free plastic package
- 2.0 Ampere operation at T_A = 55°C with no thermal runaway



- Fast switching for high efficiency
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic

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

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: .04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*BY296P*	*BY297P*	*BY298P*	*BY299P*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	100	200	400	800	Volts
Maximum RMS Voltage	V_{RMS}	70	140	280	560	Volts
Maximum DC Blocking Voltage	V_{DC}	100	200	400	800	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 55°C	$I_{(AV)}$	2.0				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load	I_{FSM}	70.0				Amps
Maximum Repetitive Peak Forward Surge (Note 1)	I_{FRM}	10.0				Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.3				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	10.0 500				µA
Maximum Reverse Recovery Time (Note 3) T_J = 25°C	T_{RR}	500				ns
Maximum Forward Recovery Time at 100mA	T_{FR}	1.0				µs
Typical Junction Capacitance (Note 2) T_J = 25°C	C_J	28.0				pf
Typical Thermal Resistance (Note 4)	RΘJA	15.0				°C/W
Operating Temperature Range	T_J	-50 to +125				°C
Storage Temperature Range	T_{STG}	-50 to +150				°C

NOTES:
1. Repetitive Peak Forward Surge Current at f<15KHz
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Reverse Recovery Tset Conditions: I_F = 10mA, I_R = 10mA, Irr = 1.0mA
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths with both leads to heat sink.

RATINGS AND CHARACTERISTIC CURVES BY296P THRU BY299P

FIG. 1 — FORWARD CURRENT DERATING CURVE

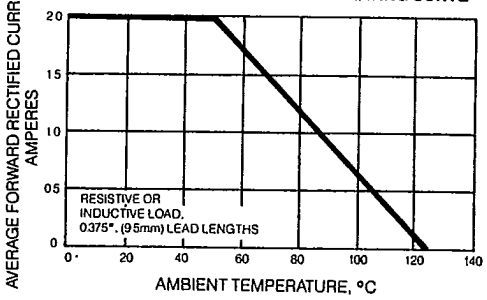


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

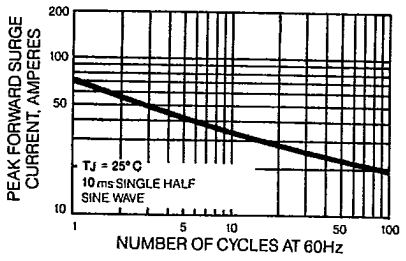


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

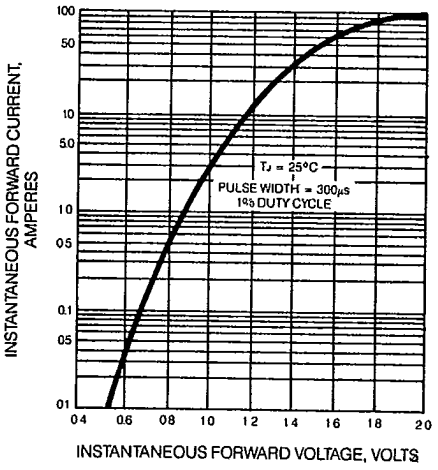


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

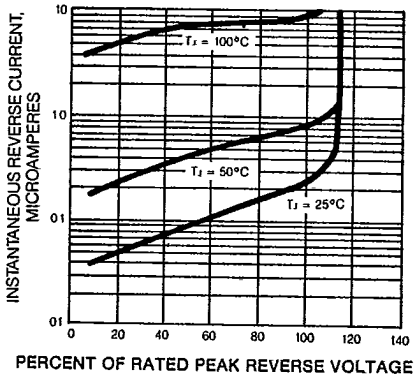
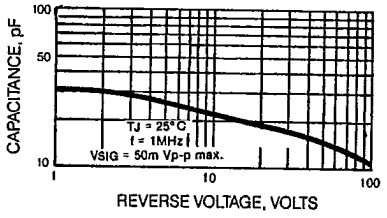


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

PACKAGING CODES

PKG. CODE	PACKAGING DESCRIPTION
1	Bulk
3	26MM Horizontal Taping and Ammo Packing
4	Standard Horizontal Reel, Class 1 (Metric 52.4MM)
6	Avisert, Cathode Up, Cathode First Off Reel
8	Avisert, Cathode Up, Cathode First Off Ammo Pack
10	Avisert, Cathode Down, Anode First Off Reel
12	Avisert, Cathode Down, Anode First Off Ammo Pack
14	Panasert, Cathode Up, Cathode First Off Reel
15	Panasert, Cathode Up, Anode Off First, Ammo Pack
16	Panasert, Cathode Up, Cathode First Off Ammo Pack
18	Panasert, Cathode Down, Anode First Off Reel
20	Panasert, Cathode Down, Anode First Off Ammo Pack
22	Bulk Pack for Special Axial-Leaded Formed Devices
23	Standard Horizontal Ammo Pack, Class I (Metric 52.4mm)
25	GL41 SMD 12MM Tape, 7" Diameter Paper Reel
26	GL41 SMD 12MM Tape, 13" Diameter Paper Reel
27	SMD, 16 MM Tape, 7" Diameter Reel
28	Special Carton Packing method for Tube Packaging Products
32	GL34 SMD, 8MM Tape, 7" Diameter Paper Reel
33	GL34 SMD, 8MM Tape, 13" Diameter Paper Reel
34	Tab Mounted EFR8 Chip, 16MM, 13" Diameter Reel
35	Bulk, Axial-Leaded Conductive Packaging
36	Standard Horizontal Reel, Class 1 (Metric 52.4MM) **Conductive Packaging**
37	Bulk, TO-220, TO3P Conductive Tubes
38	Bulk, Conductive Packaging for Bridge Rectifier
39	Miscellaneous Non-Standard T&R Packaging
40	Euroform, Reel, Cathode First Off Reel, Lead Coated
42	Euroform, Reel, Cathode Last Off Reel, Lead Coated
44	Standard Horizontal Reel (Metric) 5MM Component Spacing for DO-201 Packages
45	Tube Packaging for TO-220, TO-3P, and In Line Bridge Rectifier
46	GL41 SMD 12MM Tape, 7" Diameter Plastic Reels
47	GL41 SMD 12MM Tape, 13" Diameter Plastic Reels
48	GL34 SMD 8MM Tape, 7 " Diameter Plastic Reels
49	GL34 SMD 8MM Tape, 13" Diameter Plastic Reels

Also available for all packaging Electro-Static-Protection by adding the number "50" to the existing codes. For example, "51" would be Bulk, Electro-Static Packaging. "54" would be T/R, Electro-Static Packaging.

GENERAL INSTRUMENT

T-91-20

REEL PACKAGING

Axial leaded devices are packed in accordance with EIA Standard RS-296-E and the diagrams given below which refer to these specifications.

Table 1

COMPONENT CASE TYPE	UNITS PER REEL	COMPONENT SPACING "A" FIG. 1		TAPE SPACING "B" FIG. 1		REEL DIMENSION "D" FIG.2		MAX. OFF ALIGNMENT "E"FIG. 1		GROSS WEIGHT PER REEL	
	ea.	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.
1.5KA (PAR)	2000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	7.1	3.2
DO15	3500	.200	5.0	2.06	52.4	12.0	305	.047	1.2	4.00	1.81
DO201AD	1200	.395	10.0	2.06	52.4	12.0	305	.047	1.2	3.60	1.63
DO204AP	4000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	5.80	2.60
DO204MB	4000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	3.74	1.70
DO41	5000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	4.80	2.20
G3/G4	1500	.395	10.0	2.06	52.4	12.0	305	.047	1.2	4.80/4.40	2.20/2.00
GL34 Surface Mount	2500/7000	.157	4.0	—	—	7/13	178/330	See Fig. 6		.471/1.49	.214/.68
GL41 Surface Mount	1500/5000	.157	4.0	—	—	7/13	178/330	See Fig . 6		.471/1.49	.214/.68
GP10E Vertical	2000	.500	12.7	—	—	12.0	305	.079	2.0	2.29	1.04
GP10E Horizontal	4000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	3.04	1.38
GP20	1200	.395	10.0	2.06	52.4	12.0	305	.047	1.2	4.40	2.00
MPG06	5000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	3.74	1.70
P600	700	.395	10.0	2.06	52.4	12.0	305	.047	1.2	5.00	2.30

Table 2
Metric Spec

Component Body Diameter	Components Spacing "A"(Lead to Lead)	Inside Tape Spacing "B"	Cumulative Pitch Tolerance
0mm to 5mm (0" to .197")	5.0mm+0.5mm (.197"+.020")	26mm+0.75mm (1.024"+.030")	Not to
0mm to 5mm (0"to.197")	5.0mm+0.5mm (.197"+.020"	52.4mm+1.5mm (2.062"+.059")	Exceed 1.5mm (.059") over
5.01mm to 10mm (.197" to .394")	10mm+0.5mm (.394" ± .020")	52.4mm+1.5mm (2.062"±.059")	6 Consecutive

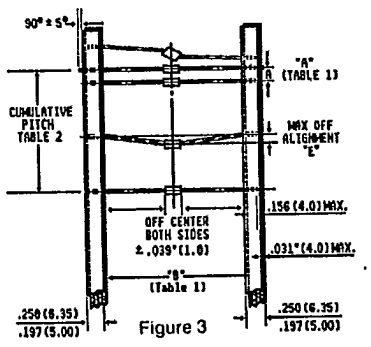


Figure 3

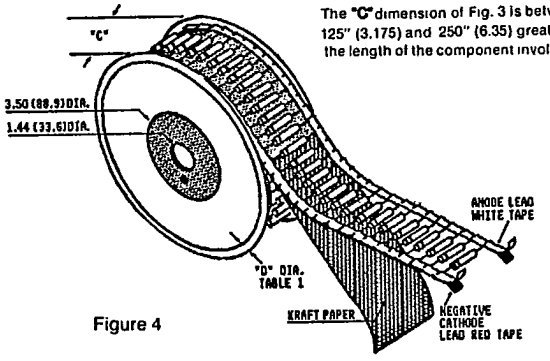


Figure 4

The "C" dimension of Fig. 3 is between .125" (3.175) and .250" (6.35) greater than the length of the component involved

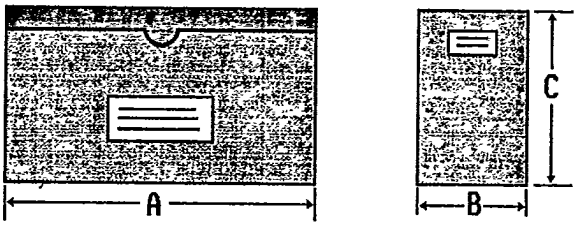
Dimensions in inches and (millimeters)

GENERAL INSTRUMENT

NEW BULK PACKAGES

DEVICE TYPE	BOX SIZE		QUANTITY	GROSS WEIGHT	
	INCHES	CM	EA.	LBS.	KG
GL34 SURFACE MOUNT	8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	8000	0.55	0.25
GL41 SURFACE MOUNT	8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	4000	1.03	0.47
DO15	11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	4000	3.85	1.75
DO201AD	11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	1500	4.41	2.0
DO204AP	11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	4000	3.75	1.7
DO204MB	11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	5000	3.15	1.45
DO41/MPG06	11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	5000	2.38/2.20	1.08/1.0
G4/G3	11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	3000/2000	5.07 / 5.29	2.3/2.4
GP20	11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	1500	3.75	1.7
J,JTX1N483B, 1N645, 1N645-1	8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	1000	0.77	0.35
J, JTX1N3611, 1N4245, 1N5614	8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	500	0.55	0.25
J, JTX1N4942, 1N5615, 1N5802	8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	500	0.55	0.25
J, JTX1N5415, 1N5550, 1N5625, 1N5807	12.0 x 3.6 x 2.5	30.4 x 9.1 x 6.3	1000	2.50	1.1
P600	11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	750	3.7 2	1.69
P6KE	11.75 x 3.5 x 1.0	29.8 x 8.8 x 2.54	2000	1.93	0.87
DF-M/DF-S ANTI-STATIC PLASTIC TUBES	19.0 LENGTH	48.2 LENGTH	50	0.12	0.05
TO-220, CT ANTI-STATIC PLASTIC TUBES	20.5 LENGTH	52.0 LENGTH	50	0.306	0.14
TO3P ANTI-STATIC PLASTIC TUBES	20.5 LENGTH	52.0 LENGTH	30	0.572	0.26
KBPM/2KBPM ANTI-STATIC PLASTIC TUBES	18.5 LENGTH	47.0 LENGTH	30	0.21	0.09
AR,ARS PLASTIC BAGS			200	0.84	0.38
WM, WG PLASTIC BAGS			100	0.37	0.17
GPP1, EFR1, 3, 5 CHIP TRAY	2.0 x 2.0 x .35	5.1 x 5.1 x 0.9	100	0.042	0.019
GPP5, EFR8 CHIP TRAY	2.0 x 2.0 x .35	5.1 x 5.1 x 0.9	100	0.044	0.020
BC PAPER BOX	9.2 x 5.0 x 2.5	23.4 x 12.7 x 6.3	100	3.08	1..4
KBU4,6,8 PVC TRAY	12.2 x 6.1 x 1.5	30.9 x 15.5 x 3.8	250	4.63	2.1
KBL PVC TRAY	12.2 x 6.1 x 1.5	30.9 x 15.5 x 3.8	300	4.19	1.9
KBPC1035W PVC TRAY	12.4 x 12.4 x 1.4	31.4 x 31.4 x 3.6	100	5.07	2.3
KBPC8 PVC TRAY	12.4 x 12.4 x 1.1	31.4 x 31.4 x 2.9	200	3.31	1.5
KBPC1,KBPC6 PVC TRAY	12.4 x 12.4 x .88	31.4 x 31.4 x 2.2	250	1.94/2.64	.88/1.2
KBPC 10/35 PVC TRAY	12.4 x 12.4 x 1.4	31.4 x 31.4 x 3.6	100	5.29	2.4

AMMO BOX PACKAGING

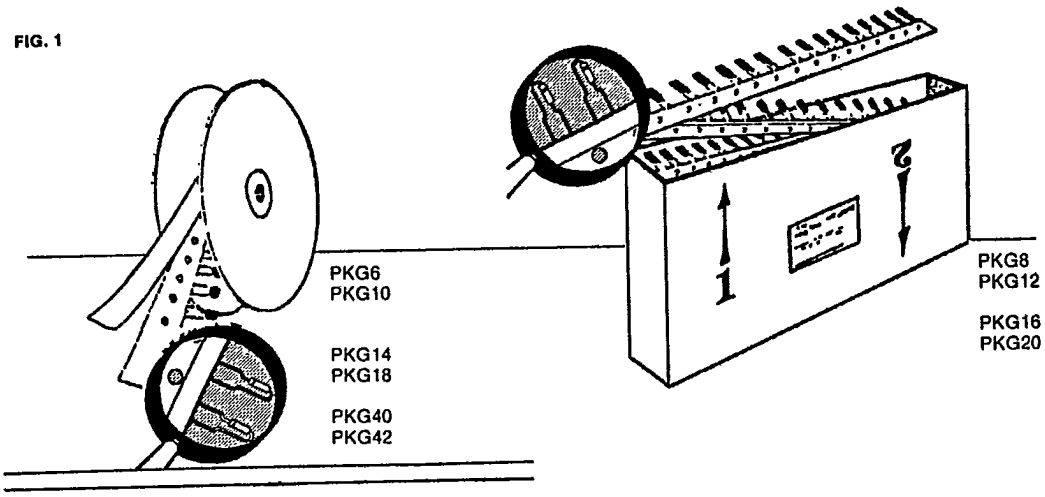


Packaging	Available Product Outlines	Packaging Codes	Dimension "A"	Dimension "B"	Dimension "C"	Quantity Box
26MM Horizontal Ammo Pack	DO-41 GI, DO-15	PKG 3	9.7" (247MM)	1.7" (44MM)	3.7" (95MM)	3K 1.5K
52MM Horizontal Ammo Pack	G1, DO-41 DO15 DO201AD, G3 P600	PKG 23	10.0" (254MM)	3.1" (79MM)	4.3" (110MM)	3K 2K 1K 3K
Vertical (Avisert, Panasert) Ammo Pack	GP10-E, RGP10-E 0.25" (0.65MM) Lead Diameter Only	PKG 8, 9 12, 13, 16 17, 20, 21	12.9" (328MM)	1.7" (42MM)	7.9" (200MM)	2K

GENERAL INSTRUMENT

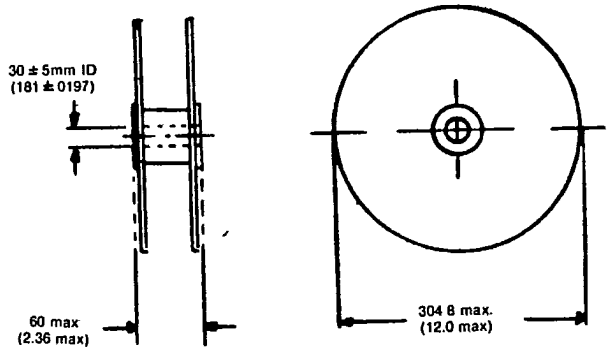
PACKAGING METHODS FOR VERTICLE TAPING

FIG. 1



Avisert:	Panasert:	Euroform:
PKG6	PKG14	PKG40
PKG8	PKG16	PKG41
PKG10	PKG18	PKG42
PKG12	PKG20	PKG43

FIG. 2



ALL DIMENSIONS
IN MILLIMETERS AND INCHES

Package per EIA JEDEC standard RS-468 Available on reels or fan fold box (ammo pack)

Available only for DO41 case style products utilizing 0.65mm (.025") or 0.76mm (.30") diameter leads for Panasert and Avisert Tape and Reeling.

Available only for GP10 products only utilizing 0.65mm (.025") diameter leads for Euroform Tape and Reeling by adding suffix "E" (GP10GE, 1N4004GPE)

GENERAL INSTRUMENT

VERTICLE REEL PACKAGING

ALL DIMENSIONS
IN MILLIMETERS AND (INCHES)

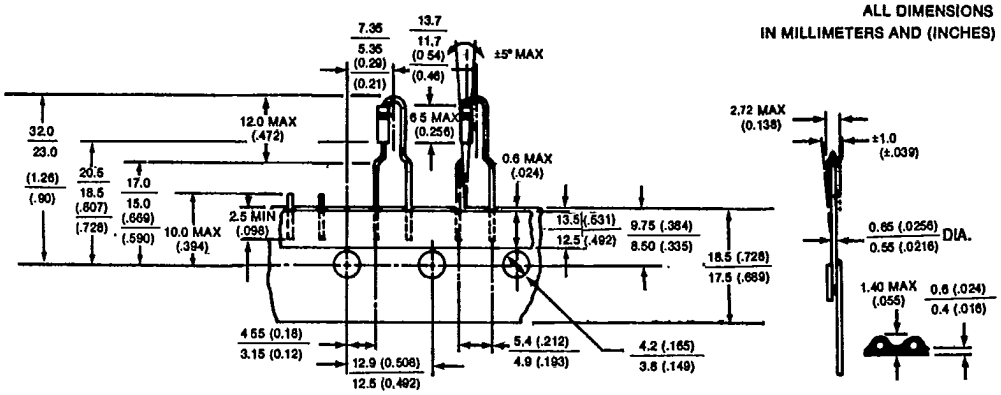
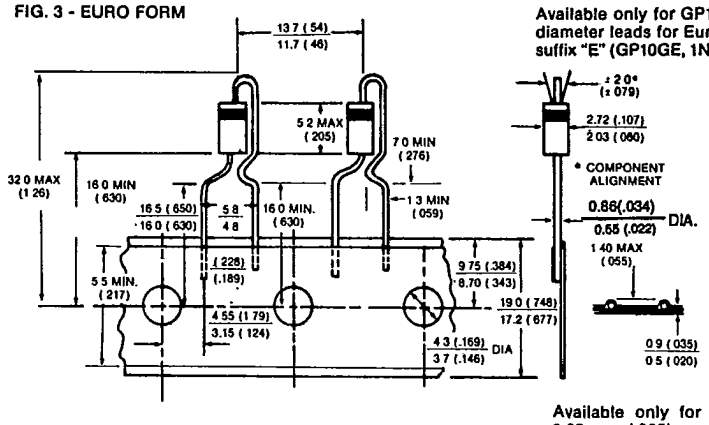


FIG. 3 - EURO FORM

Available only for GP10 products utilizing 0.65mm (.025) diameter leads for Euroform Tape and Reeling by adding suffix "E" (GP10GE, 1N4004GPE). Lead coating is standard.



User Direction Feed

FIG 4 — PANASERT

Available only for DO41 case style products utilizing 0.65mm (.025) or 0.76mm (.30) diameter leads for Panasert and Avisert Tape and Reeling. Lead coating is not available.

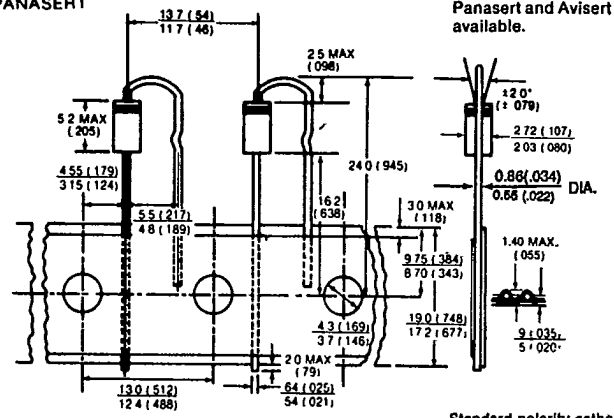


FIG. 5 — AVISERT

Standard polarity cathode oriented away from sproket holes
(Optional polarity cathode oriented toward sproket holes)

GENERAL INSTRUMENT

T-91-20

SURFACE MOUNT PACKAGING

Packed per EIA/JEDEC Standard RS-481

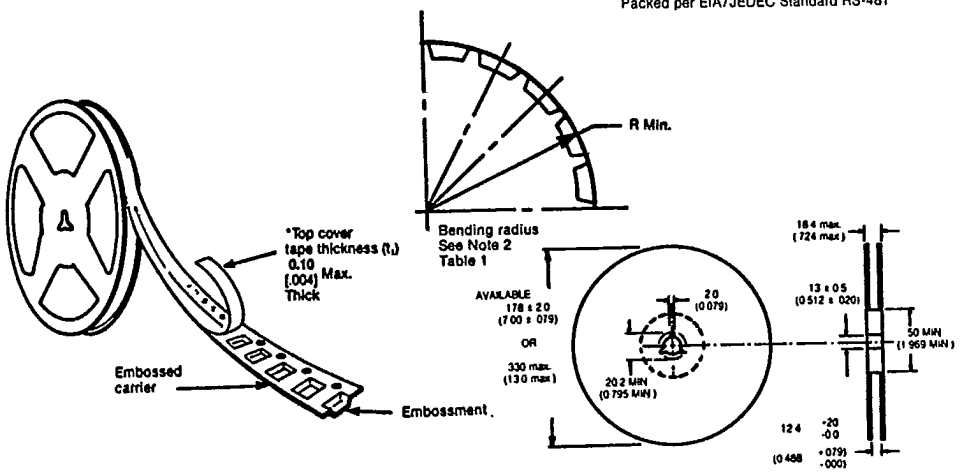


Table 1

8, 12, 16, MM Embossed Tape — All Dimensions in Millimeters and (Inches)

Tape Size	D	E	Po	t	Ao Bo Ko				
8, 12, MM	1.5 (.059)	1.75±0.10 (.069±.004)	4.0±.10 (.157 ± .004)	0.400 (.016)	See Note 1 Table 2				Constant Dimensions

Product Type	Tape Size	Max. B¹	Min. D¹	F	Max. K	P²	Min. R	W	P	Variable Dimensions
GL34	8MM	4.2 (.165)	1.0 (.039)	3.5±0.05 (.138±.002)	2.4 (.094)	2.0±0.05 (.079±.002)	25 (.984)	8.0±.30 (.315±.012)	4.0±0.10	
GL41	12MM	8.2 (.323)	1.5 (.059)	5.5±0.05 (.217±.002)	4.5 (.177)		30 (1.181)	12.0±.30 (.472±.012)		

es:
ıo Bo Ko are determined by component size. The clearance between the component and the cavity must be within 0.05 min. to 0.5 max. for 8MM tape and
ı min to 0.650 max. for 12 MM tape.
ıddition the components cannot rotate more than 20° within the determined cavity.
'ape and components will pass around radius "R" without damage.

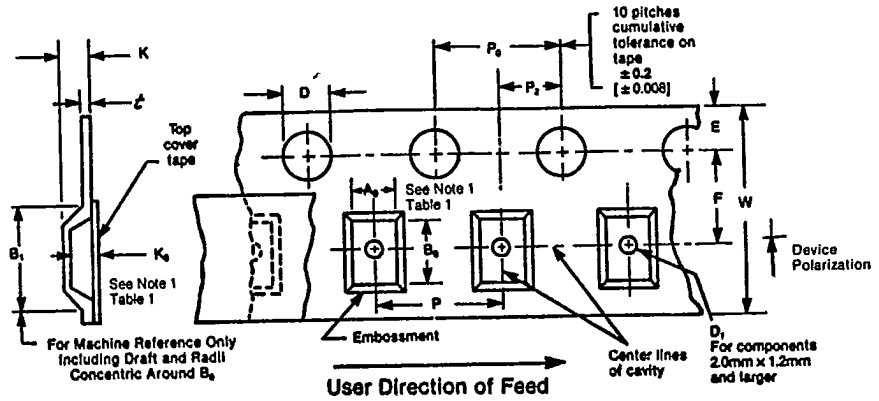


FIG. 6

GENERAL INSTRUMENT