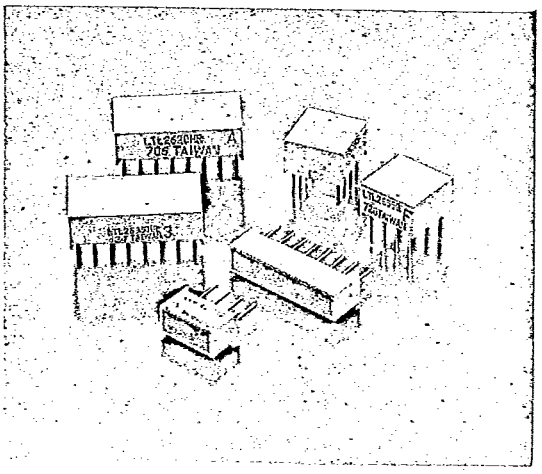
T-41-31

FEATURES

- RECTANGULAR LIGHT BAR.
- CHOICE OF THREE BRIGHT COLORS-GREEN/ YELLOW/ HIGH EFFICIENCY RED.
- LARGE, BRIGHT, UNIFORM LIGHT EMITTING AREAS.
- LOW POWER REQUIREMENT.
- EXCELLENT ON-OFF CONTRAST.
- CAN BE USED WITH PANEL AND LEGEND MOUNT.
- SUITABLE FOR MULTIPLEX OPERATION.
- I.C. COMPATIBLE.
- EASY MOUNTING ON P.C. BOARDS.



DESCRIPTION

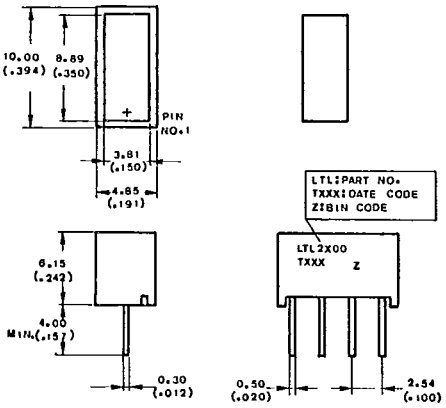
The LTL-2300/2400/2500/2600/2700/2800 series light bars are rectangular light sources designed for a variety of applications where a large bright source of light is required. These light bars are configured in single-in-line and dual-in-line packages. The green series devices utilize LED chips which are made from GaP on a transparent GaP substrate. The yellow and high efficiency red series devices utilize LED chips which are made from GaAsP on transparent GaP substrate. All devices have white bar color.

DEVICES

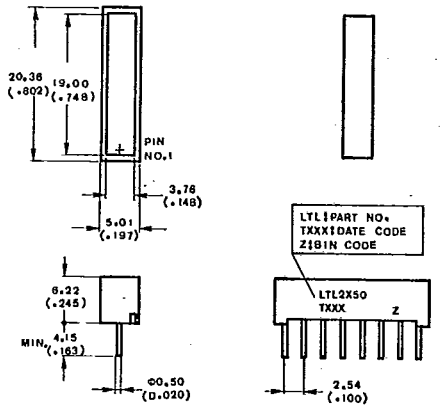
PART NO. LTL–			Size of Light Emitting Areas	PACKAGE DIMENSION		INTERNAL CIRCUIT DIAGRAM
GREEN	YELLOW	HI.-EFF. RED				
2500G	2400Y	2300HR	8.89 mm x 3.81 mm (.350 in x .150 in.)	A		A
2550G	2450Y	2350HR	19.05 mm x 3.81 mm (.750 in x .150 in.)	B		B
2800G	2700Y	2600HR	8.89 mm x 3.81 mm (.350 in x .150 in.)	C		C
2855G	2755Y	2655HR	8.89 mm x 8.89 mm (.350 in x .350 in.)	D		D
2820G	2720Y	2620HR	8.89 mm x 3.81 mm (.350 in x .150 in.)	E		E
2885G	2785Y	2685HR	8.89 mm x 19.05 mm (.350 in x .750 in.)	F		F

PACKAGE DIMENSIONS

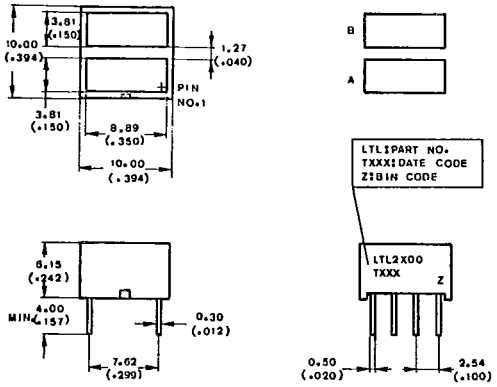
A. LTL-2300/2400/2500



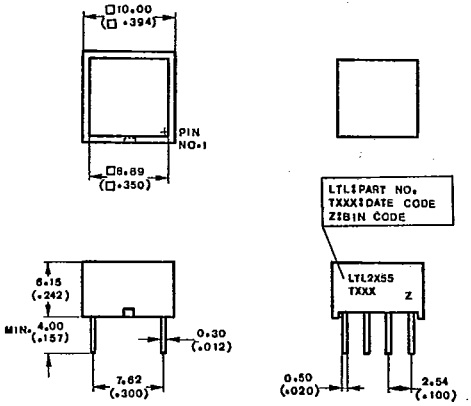
B. LTL-2350/2450/2550



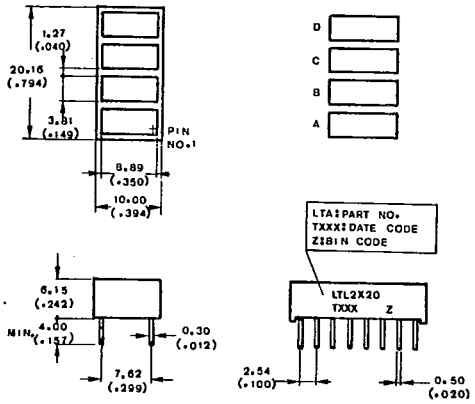
C. LTL-2600H/2700/2800



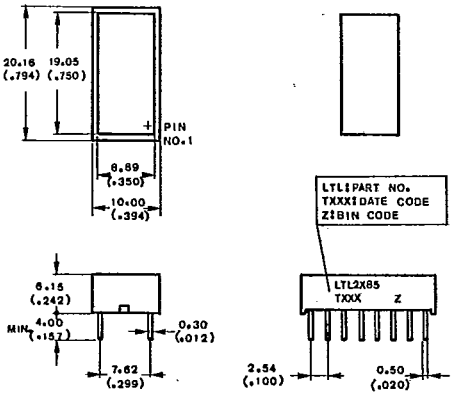
D. LTL-2655/2755/2855



E. LTL-2620/2720/2820



F. LTL-2685/2785/2885



NOTE: All dimensions are in millimeters (inches) tolerance are:

1. Lead length (from seating plane): minimum value $\frac{+1.00}{-0.000}$ mm ($\frac{+0.040''}{-0.000''}$)
2. $\frac{\pm 0.25mm}{(0.010'')}$ unless otherwise noted.

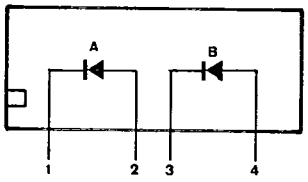
PIN CONNECTION

PIN NO.	CONNECTION			
	A LTL-2300/2400/2500	B LTL-2350/2450/2550	C LTL-2600/2700-2800	D LTL-2655/2755/2855
1	Cathode A	Cathode A	Cathode A	Cathode A
2	Anode A	Anode A	Anode A	Anode A
3	Cathode B	Cathode B	Anode B	Anode B
4	Anode B	Anode B	Cathode B	Cathode B
5		Cathode C	Cathode C	Cathode C
6		Anode C	Anode C	Anode C
7		Cathode D	Anode D	Anode D
8		Anode D	Cathode D	Cathode D

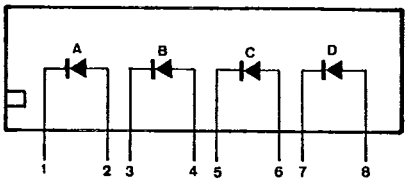
PIN NO.	CONNECTION	
	E. LTL-2620/2720/2820	F. LTL-2685/2785/2885
1	Cathode A	Cathode A
2	Anode A	Anode A
3	Anode B	Anode B
4	Cathode B	Cathode B
5	Cathode C	Cathode C
6	Anode C	Anode C
7	Anode D	Anode D
8	Cathode D	Cathode D
9	Cathode E	Cathode E
10	Anode E	Anode E
11	Anode F	Anode F
12	Cathode F	Cathode F
13	Cathode G	Cathode G
14	Anode G	Anode G
15	Anode H	Anode H
16	Cathode H	Cathode H

INTERNAL CIRCUIT DIAGRAM

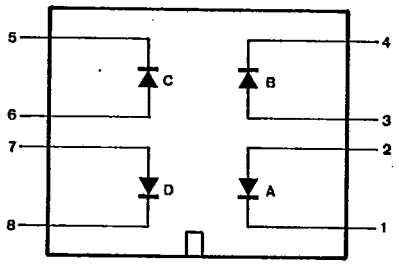
A. LTL-2300/2400/2500



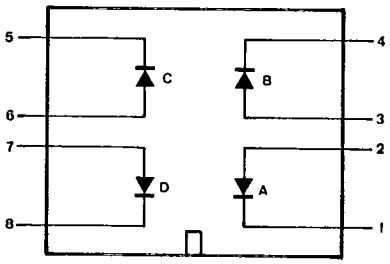
B. LTL-2350/2450/2550



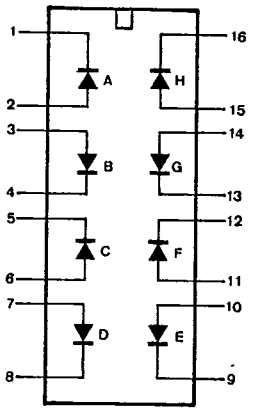
C. LTL-2600/2700/2800



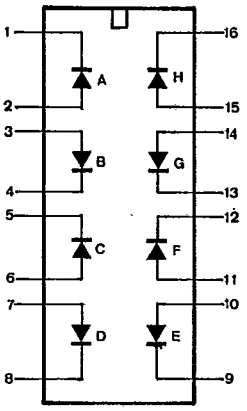
D. LTL-2655/2755/2855



E. LTL-2620/2720/2820



F. LTL-2685/2785/2885



ABSOLUTE MAXIMUM RATINGS AT T_A = 25°C

PARAMETER	GREEN	YELLOW	HI.-EFF. RED	UNIT
Power Dissipation Per Chip	75	60	75	mW
Peak Forward Current Per Chip (1/10 Duty Cycle, 0.1ms Pulse Width)	100	80	100	mA
Continuous Forward Current Per Chip	25	20	25	mA
Derating Linear From 25°C Per Chip	0.3	0.24	0.3	mA/°C
Reverse Voltage Per Chip	5	5	5	V
Operating Temperature Range	−25°C to +85°C			
Storage Temperature Range	−25°C to +85°C			
Solder Temperature 1/16 inch Below Seating Plane for 3 Seconds at 260°C				

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25°C$
HI-EFF RED LTL-2300HR/2600HR SERIES

PARAMETER	LTL–	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity Per Bar	2300	I_V	1.3	4.2		mcd	I_F = 10 mA
	2350		3.5	8			
	2600		1.3	4.2			
	2620		1.3	4.2			
	2655		3.5	8			
	2685		7	16			
Peak Emission Wavelength		λ_p		635		nm	I_F = 20 mA
Spectral Line Half-Width		$\Delta\lambda$		40		nm	I_F = 20 mA
Forward Voltage any Chip		V_F		2.1	2.8	V	I_F = 20 mA
Reverse Current any Chip		I_R			100	μA	V_R = 5V

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES
(25°C Ambient Temperature Unless Otherwise Noted)

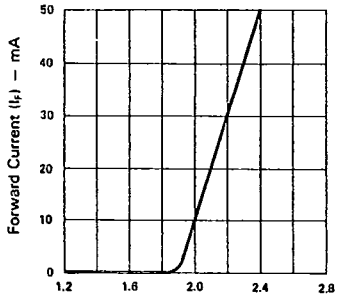


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

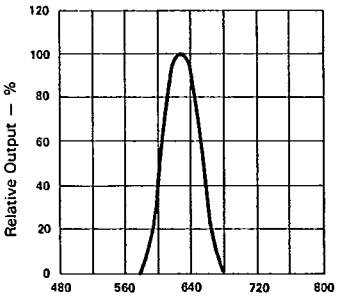


Fig. 2 SPECTRAL RESPONSE.

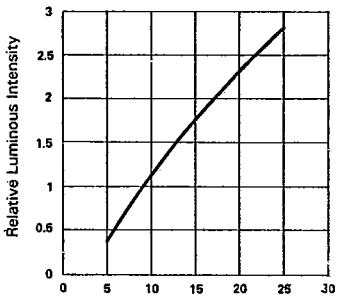


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

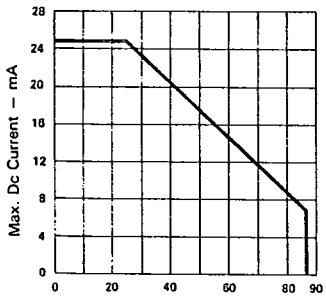


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

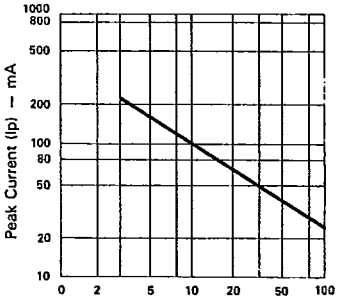


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE.% (REFRESH RATE – F = 1 KHz)

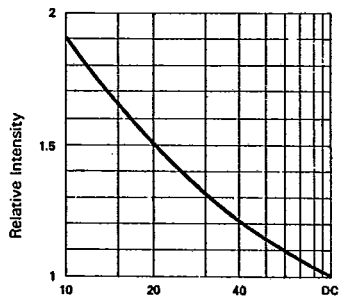


Fig. 6 LUMINOUS INTENSITY Vs. DUTY CYCLE%. (AVERAGE I_F = 10mA PER SEG.)

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25°C$
YELLOW LTL-2400Y/2700Y SERIES

PARAMETER	LTL–	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity Per Bar	2400	Iv	1.3	4.2		mcd	I_F = 10 mA
	2450		3.5	8			
	2700		1.3	4.2			
	2720		1.3	4.2			
	2755		3.5	8			
	2785		7	16			
Peak Emission Wavelength		λp		585		nm	I_F = 20 mA
Spectral Line Half-Width		Δλ		35		nm	I_F = 20 mA
Forward Voltage any Chip		V_F		2.1	2.8	V	I_F = 20 mA
Reverse Current any Chip		I_R			100	μA	V_R = 5V

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25° C Ambient Temperature Unless Otherwise Noted)

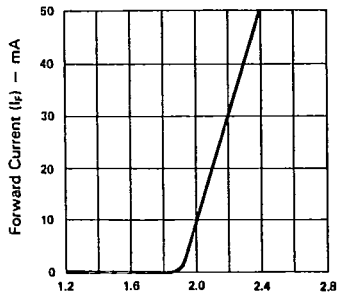


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

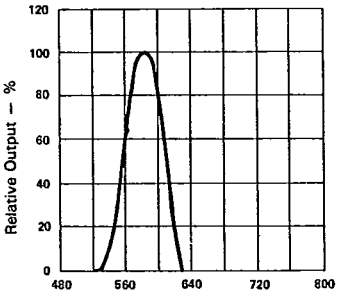


Fig. 2 SPECTRAL RESPONSE.

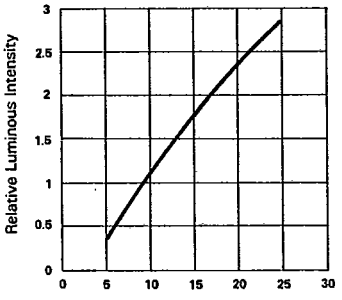


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

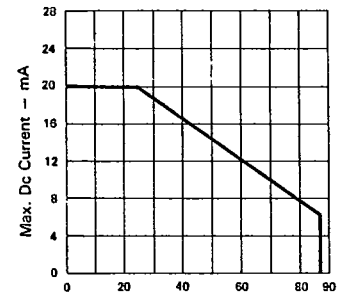


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

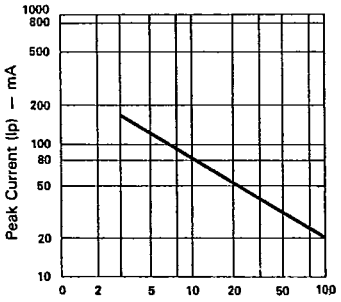


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE.% (REFRESH RATE — F = 1 KHz)

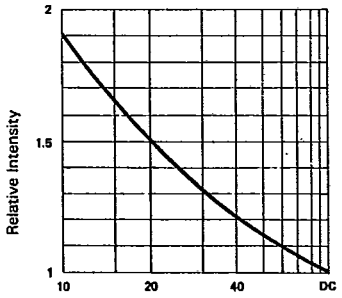


Fig. 6 LUMINOUS INTENSITY Vs. DUTY CYCLE% (AVERAGE I_F = 10mA PER SEG.)

ELECTRICAL/OPTICAL CHARACTERISTICS AT T_A = 25°C
GREEN LTL-2500G/2800G SERIES

PARAMETER	LTL–	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity Per Bar	2500	I_V	1.3	4.2		mcd	I_F = 10 mA
	2550		3.5	8			
	2800		1.3	4.2			
	2820		1.3	4.2			
	2855		3.5	8			
	2885		7	16			
Peak Emission Wavelength		λ_p		565		nm	I_F = 20 mA
Spectral Line Half-Width		$\Delta\lambda$		30		nm	I_F = 20 mA
Forward Voltage any Chip		V_F		2.1	2.8	V	I_F = 20 mA
Reverse Current any Chip		I_R			100	μA	V_R = 5V

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

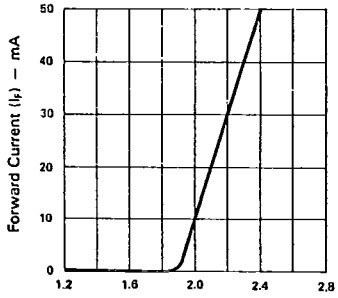


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

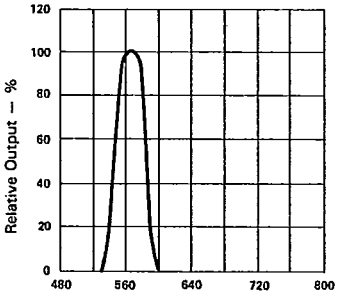


Fig. 2 SPECTRAL RESPONSE.

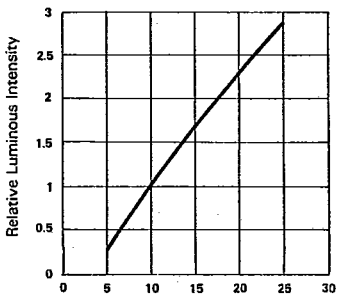


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

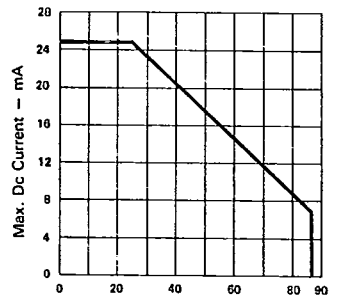


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

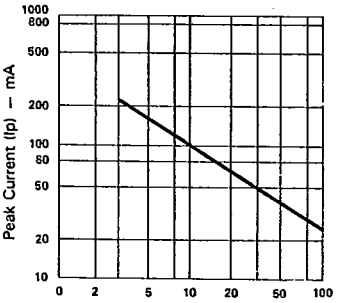


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE.% (REFRESH RATE – F = 1 KHz)

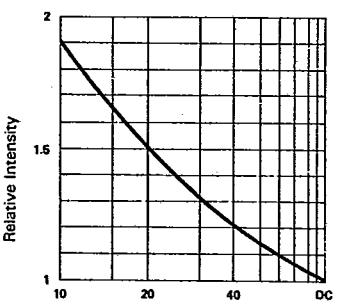


Fig.6 LUMINOUS INTENSITY Vs. DUTY CYCLE% (AVERAGE I_F = 10mA PER SEG.)

PACKAGING

T-90-20

Reel Packaging (Axial Lead Units)

DEVICE TYPE	COMPONENT SPACE (MM) "A"	TAPE SPACE (MM) "B"	REEL DIA (MM) "D"	QUANTITY (EA)		CARTON	
				REEL	CARTON	SIZE (MM)	WEIGHT (KG)
DO-41/DO-41L	5±0.5	52.4±1.5	326~336	5000	20K	355 x 355 x 355	10.5
DO-201AD	10±0.5	52.4±1.5	326~336	1200	4.8K	355 x 355 x 355	9.0
P6(Aleg)	10±0.5	52.4±1.5	326~336	700	2.8K	355 x 355 x 355	8.8

The C dimension of Fig. 3 is between 3.17m.m. and 635mm greater than the length of the component involved.

FIG. 1

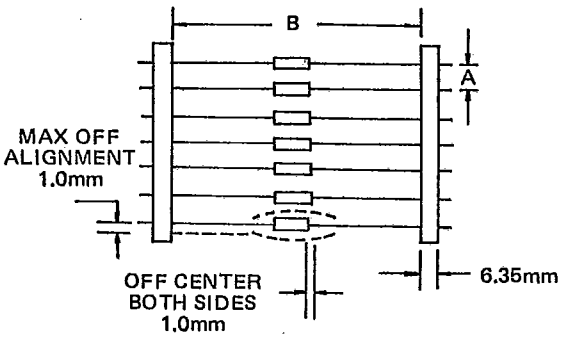


FIG.2

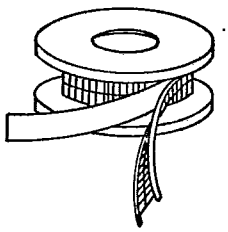
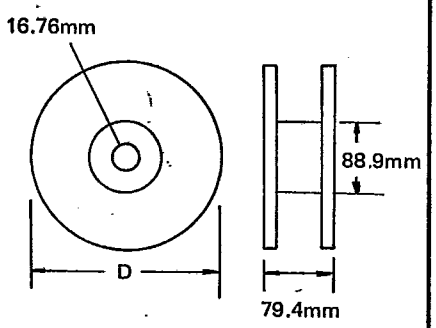


FIG. 3

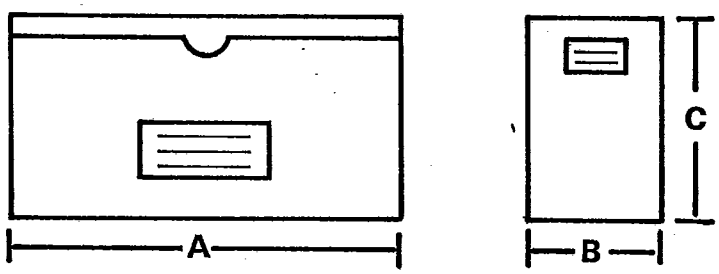


Bulk Packaging (Axial Lead Devices and Bridge Rectifiers)

DEVICE TYPE	PACKAGING SIZE (MM)		QUANTITY (EA)		APPROX GROSS WEIGHT (KG)	
	BOX	CARTON	BOX	CARTON	BOX	CARTON
DO-41/DO-41L	196 x 84 x 20	450 x 210 x 250	1000	50K	0.38	20
DO-201AD	305 x 93 x 59	355 x 355 x 355	1000	20K	1.35	28
P6(Aleg)	305 x 93 x 59	355 x 355 x 355	500	10K	1.2	24.5
PBM	357 x 125 x 60	530 x 360 x 340	1000	20K	1.5	32.3
PBDF	495 x 155 x 145	500 x 325 x 305	5000	20K	5.1	21.5
PBP	357 x 125 x 60	530 x 360 x 340	500	10K	1.5	31.5
PBL	375 x 220 x 155	470 x 385 x 455	1000	5K	5.7	30.5
PBPC-6	357 x 125 x 60	560 x 360 x 340	250	5K	1.1	22
PBPC-8	357 x 125 x 60	560 x 360 x 340	250	5K	1.7	35
KBPC	375 x 220 x 365	470 x 390 x 385	500	1K	15.1	31.5
KBPC-W	375 x 220 x 365	470 x 390 x 385	500	1K	14.5	30.0

AMMO BOX PACKAGING

BOX SIZE



Unit:m. m.

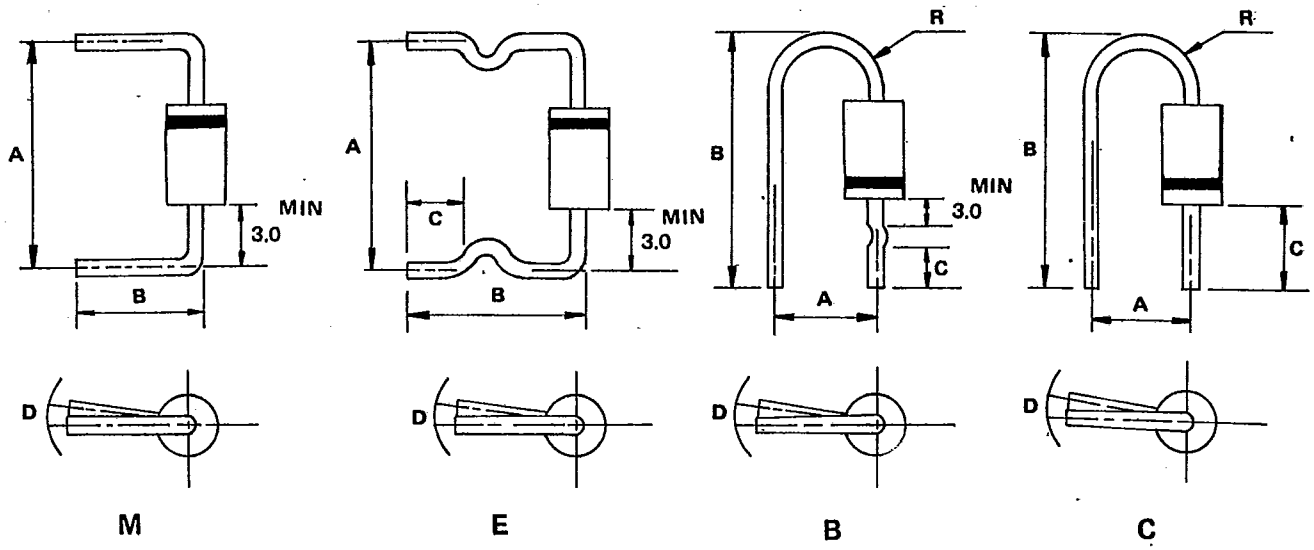
Packaging	Products Outline	Dimension "A"	Dimension "B"	Dimension "C"	Q'ty per BOX
26MM Horizontal Ammo Pack	DO-41	255	50	95	3K
	DO-41L(0.6mm Lead)				3K
52MM Horizontal Ammo Pack	DO-41and DO-41L	250	75	92	3K
	DO 201AD				0.8K

CARTON SIZE

Unit:m. m.

Packaging	Products Outline	length	Width	High	Q'ty Per Carton
26MM Horizontal Ammo Pack	DO-41	330	310	268	42K
	DO-41L(0.6mm Lead)				
52MM Horizontal Ammo Pack	DO-41and DO-41L	355	355	340	48K
	DO 201AD				12K

PREFORMED LEAD DRAWING



Case type	Preformed type	A (mm)		B (mm)		C (mm)		D (mm)		R (mm)	
		range	tolerance	range	tolerance	range	tolerance	range	tolerance	range	tolerance
D041	M	9.0—20.0	1.0	8.0-22.0	±0.5	—	—	1.5	max	—	—
	E	11.0-20.0	±1.0	11.0-16.0	±1.0	4.0-5.0	±0.5	1.5	max	—	—
	B	7.5	±0.5	19.0-22.0	±0.5	7.5	±0.5	1.5	max	2.5-4.0	Typ
	C	4.5	±0.8	18.0-19.0	±0.5	9 0	±0.5	1.5	max	2.5-4.0	Typ
DO201AD	M	15.0-20.0	±1.0	8.0-22.0	±1.0	—	—	2.0	max	—	—
	E	15.0-20.0	±1.0	10.0-22.0	±1.0	3.0-15.0	±0.5	2.0	max	—	—
P6(Aleg)	M	15.0-20.0	±1.0	8.0-22.0	±1.0	—	—	2.0	max	—	—