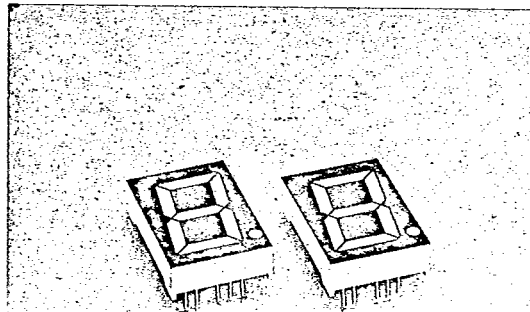


LITEON**LTS-10804/10304
10805A/10305A SERIES****1.0" SINGLE DIGIT NUMERIC DISPLAYS**

T-41-33

FEATURES

- 1.0 INCH (25.4mm) DIGIT HEIGHT.
- CONTINUOUS UNIFORM SEGMENTS.
- CHOICE OF THREE BRIGHT COLORS-GREEN/
YELLOW/ORANGE.
- LOW POWER REQUIREMENT.
- EXCELLENT CHARACTERS APPEARANCE.
- HIGH BRIGHTNESS.
- WIDE VIEWING ANGLE.
- SOLID STATE RELIABILITY.
- CATEGORIZED FOR LUMINOUS INTENSITY.
- I.C. COMPATIBLE.
- EASY MOUNTING ON P.C. BOARD OR SOCKETS.

**DESCRIPTION**

The LTS-10000 series are 1.0 inch (25.4mm) height single digit displays.

The and green series devices utilize LED chips which are made from GaP on a transparent GaP substrate. The yellow and orange series devices utilize LED chips which are made from GaAsP on a transparent GaP substrate. All devices have black face and white segment color.

SEVEN-SEGMENT LED DISPLAYS
GaP/GaAsP NUMERIC DISPLAYS**DEVICES**

	PART NO. LTS-			DESCRIPTION	PACKAGE DIMENSION	INTERNAL CIRCUIT DIAGRAM
	GREEN	YELLOW	ORANGE			
10804G	10804Y	10804E	—	Common Anode, Rt. Hand Decimal	A	A
10304G	10304Y	10304E	—	Common Cathode Rt. Hand Decimal	A	B
—	—	—	10805A	Common Anode, Rt. Hand Decimal	B	C
—	—	—	10305A	Common Cathode, Rt. Hand Decimal	B	D

5-86

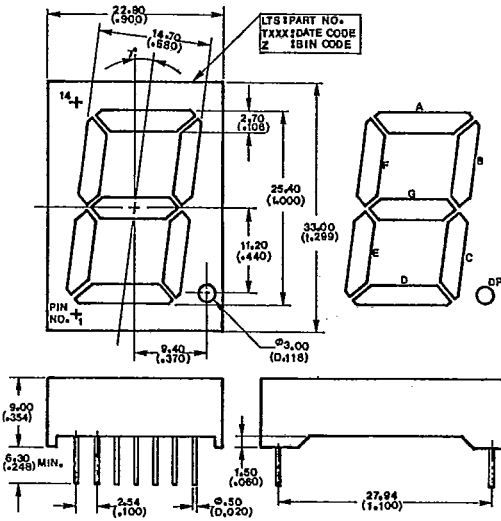
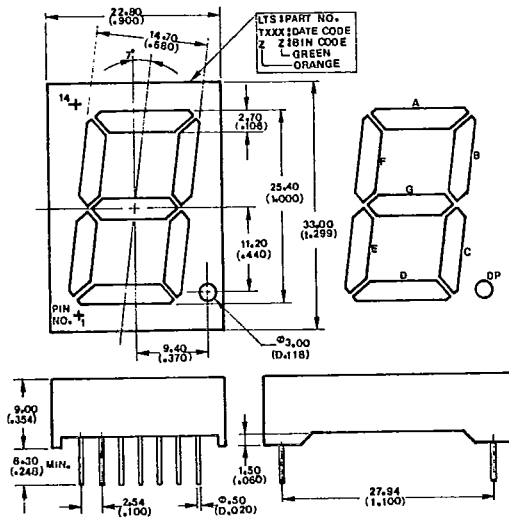
749

T-41-33

PACKAGE DIMENSIONS

A. LTS-10x04

B. LTS-10x05A



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

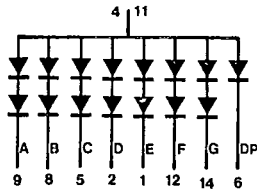
- Lead length (from seating plane): minimum value $\frac{+1.00}{-0.00}$ mm $\frac{+0.040''}{-0.000''}$
- ± 0.25 mm $(0.010'')$ unless otherwise noted.

PIN CONNECTION

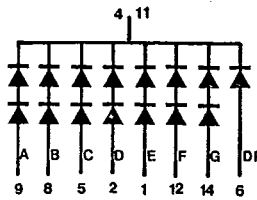
PIN NO.	CONNECTION			
	A. LTS-10804	B. LTS-10304	C. LTS-10805A	D. LTS-10305A
1	Cathode E	Anode E	Cathode E	Anode E
2	Cathode D	Anode D	Cathode D	Anode D
3	No Pin	No Pin	No Pin	No Pin
4	Common Anode	Common Cathode	Common Anode Green	Common Cathode Green
5	Cathode C	Anode C	Cathode C	Anode C
6	Cathode D.P.	Anode D.P.	Cathode D.P.	Anode D.P.
7	No Pin	No Pin	No Pin	No Pin
8	Cathode B	Anode B	Cathode B	Anode B
9	Cathode A	Anode A	Cathode A	Anode A
10	No Pin	No Pin	No Pin	No Pin
11	Common Anode	Common Cathode	Common Anode Orange	Common Cathode Orange
12	Cathode F	Anode F	Cathode F	Anode F
13	No Pin	No Pin	No Pin	No Pin
14	Cathode G	Anode G	Cathode G	Anode G

INTERNAL CIRCUIT DIAGRAM

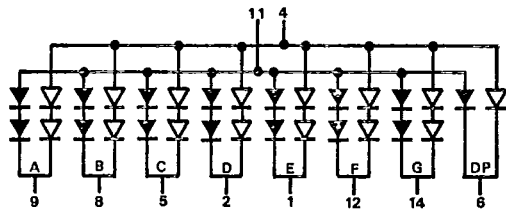
A. LTS-10804



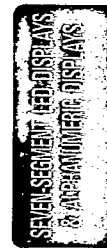
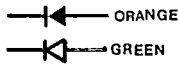
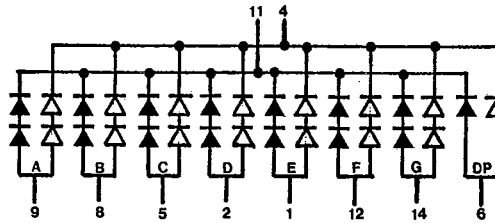
B. LTS-10304



C. LTS-10805A



D. LTS-10305A



ABSOLUTE MAXIMUM RATINGS AT TA = 25°C

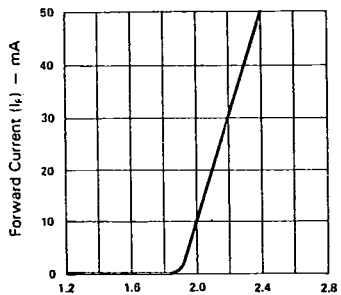
PARAMETER	GREEN	YELLOW	ORANGE	UNIT
Power Dissipation Per Segment	120	100	120	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1ms Pulse Width)	100	80	100	mA
Continuous Forward Current Per Segment	25	20	25	mA
Derating Linear From 25°C Per Segment	0.3	0.24	0.3	mA/°C
Reverse Voltage Per Segment	10	10	10	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 $T_A = 25^\circ\text{C}$
LTS-10000G/10000A (GREEN)**

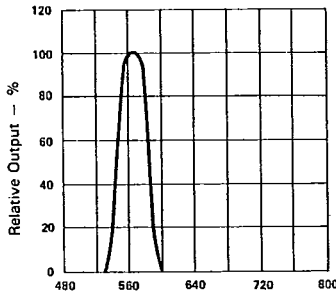
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_v	2.5	4.5		mcd	$I_F = 10\text{ mA}$
Peak Emission Wavelength	λ_p		565		nm	$I_F = 20\text{ mA}$
Spectral Line Half-Width	$\Delta\lambda$		30		nm	$I_F = 20\text{ mA}$
Forward Voltage, any Segment	V_F		4.2 (2.1)	5.6 (2.8)	V	$I_F = 20\text{ mA}$
Reverse Current, any Segment	I_R			100	μA	$V_R = 10\text{V}$
Luminous Intensity Matching Ratio	$I_v\text{-m}$			2:1		$I_F = 20\text{ mA}$

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

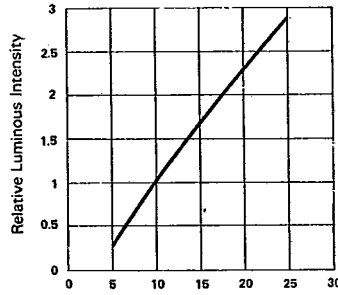
(25°C Ambient Temperature Unless Otherwise Noted)



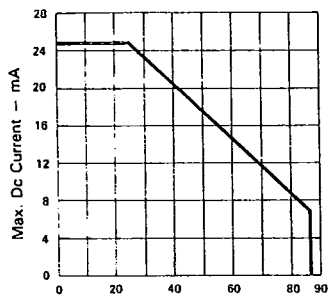
Forward Voltage (V_f) - Volts
Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.



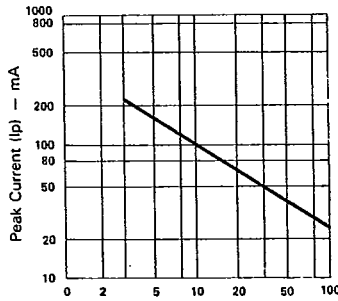
Wavelength (λ) - nm.
Fig. 2 SPECTRAL RESPONSE.



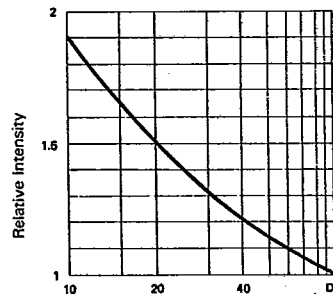
Forward Current (I_f) - mA
Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).



Ambient Temperature (T_a) - $^\circ\text{C}$
Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.



Duty Cycle %
Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE.% (REFRESH RATE - $F = 1\text{ KHz}$)



Duty Cycle %
Fig. 6 LUMINOUS INTENSITY Vs. DUTY CYCLE.% (AVERAGE $I_f = 10\text{mA}$ PER SEG.)

**ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25^\circ\text{C}$
LTS-1000Y**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_v	2.5	4.5		mcd	$I_F = 10\text{ mA}$
Peak Emission Wavelength	λ_p		585		nm	$I_F = 20\text{ mA}$
Spectral Line Half-Width	$\Delta\lambda$		35		nm	$I_F = 20\text{ mA}$
Forward Voltage, any Segment	V_F		4.2 (2.1)	5.6 (2.8)	V	$I_F = 20\text{ mA}$
Reverse Current, any Segment	I_R			100	μA	$V_R = 10\text{V}$
Luminous Intensity Matching Ratio	$I_v\text{-m}$			2:1		$I_F = 20\text{ mA}$

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

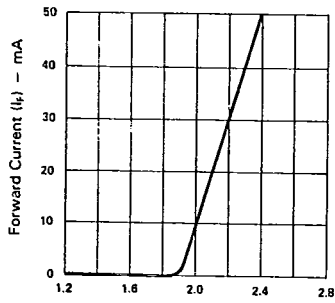


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

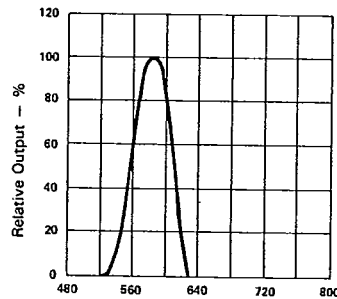


Fig. 2 SPECTRAL RESPONSE.

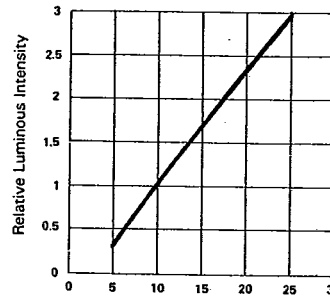


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

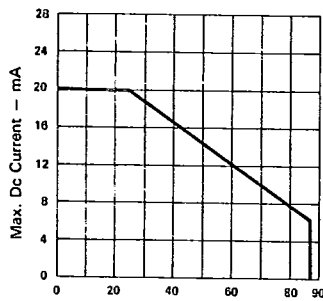


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

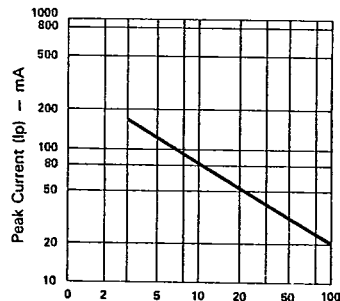


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE.% (REFRESH RATE - F = 1 KHz)

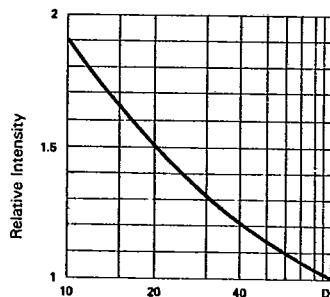


Fig. 6 LUMINOUS INTENSITY Vs. DUTY CYCLE% (AVERAGE $I_F = 10\text{mA}$ PER SEG.)



**ELECTRICAL/OPTICAL CHARACTERISTICS AT TA = 25°C
LTS-10000E/10000A (ORANGE)**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_v	2.5	4.5		mcd	$I_F = 10 \text{ mA}$
Peak Emission Wavelength	λ_p		630		nm	$I_F = 20 \text{ mA}$
Spectral Line Half-Width	$\Delta\lambda$		40		nm	$I_F = 20 \text{ mA}$
Forward Voltage, any Segment	V_F		4.2 (2.1)	5.6 (2.8)	V	$I_F = 20 \text{ mA}$
Reverse Current, any Segment	I_R			100	μA	$V_R = 10\text{V}$
Luminous Intensity Matching Ratio	$I_v\text{-m}$			2:1		$I_F = 20 \text{ mA}$

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

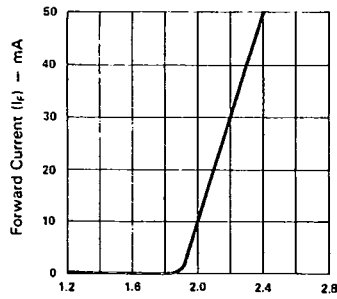


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

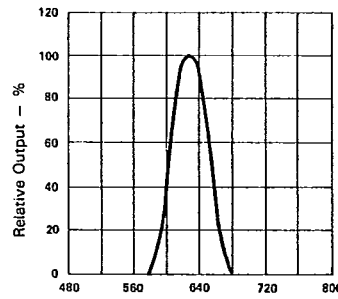


Fig. 2 SPECTRAL RESPONSE.

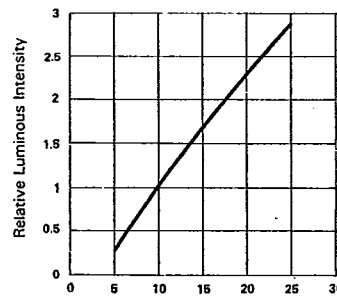


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

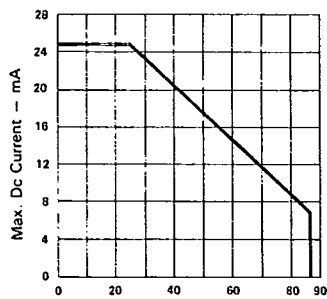


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

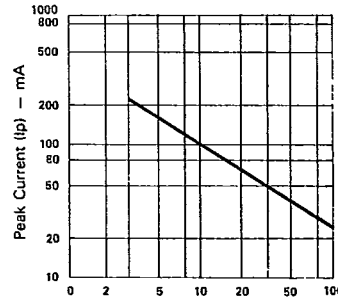


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE.% (REFRESH RATE - F = 1 KHz)

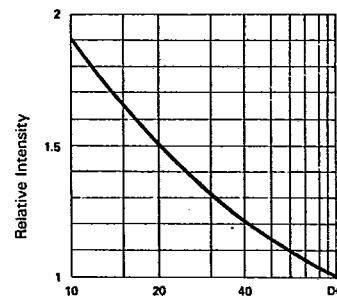


Fig. 6 LUMINOUS INTENSITY Vs. DUTY CYCLE% (AVERAGE $I_f = 10\text{mA}$ PER SEG.)

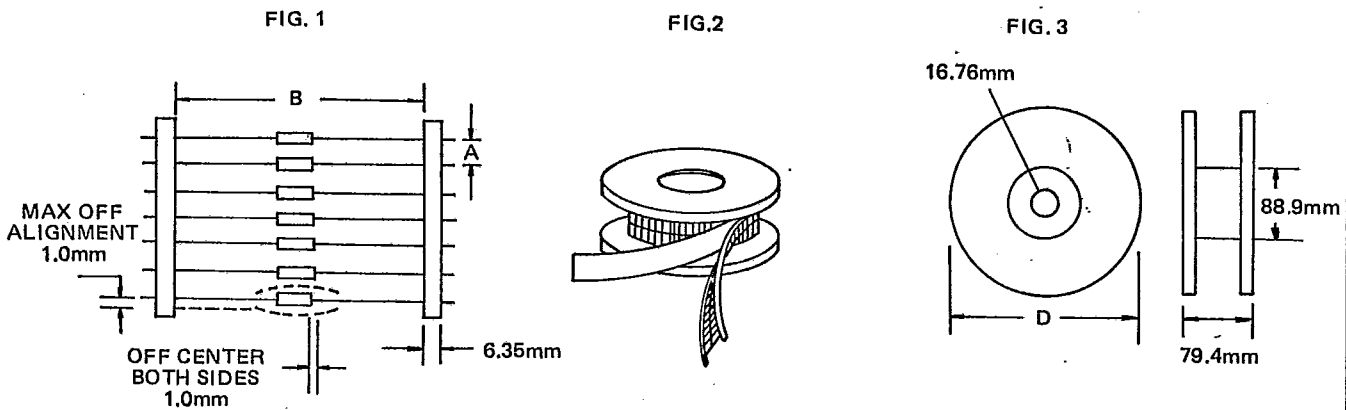
PACKAGING

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.

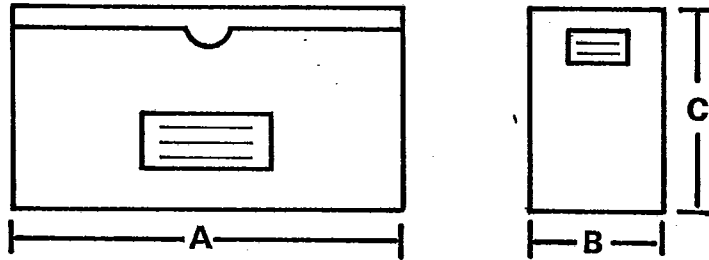


Bulk Packaging (Axial Lead Devices and Bridge Rectifiers)

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.

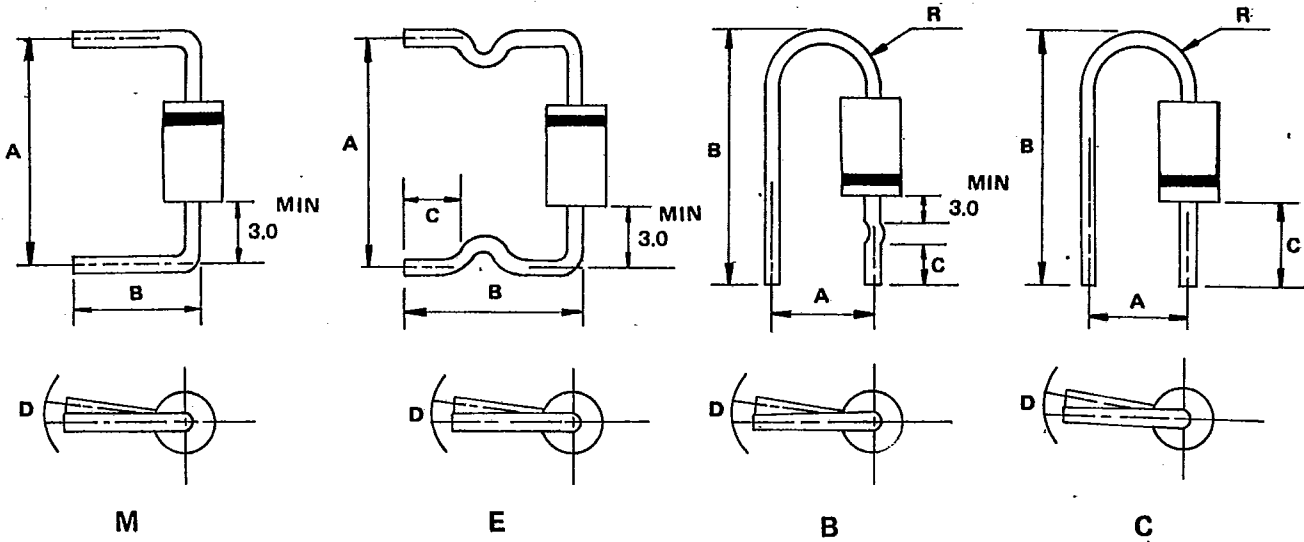
Packaging	Products Outline	Dimension *A*	Dimension *B*	Dimension *C*	Q'ty per BOX
26MM Horizontal Ammo Pack	DO-41 DO-41L(0.6mm Lead)	255	50	95	3K
					3K
52MM Horizontal Ammo Pack	DO-41and DO-41L DO 201AD	250	75	92	3K
					0.8K

CARTON SIZE

Unit:m. m.

Packaging	Products Outline	length	Width	High	Q'ty Per Carton
26MM Horizontal Ammo Pack	DO-41 DO-41L(0.6mm Lead)	330	310	268	42K
					48K
52MM Horizontal Ammo Pack	DO-41and DO-41L DO 201AD	355	355	340	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
D0201AD	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	-	-