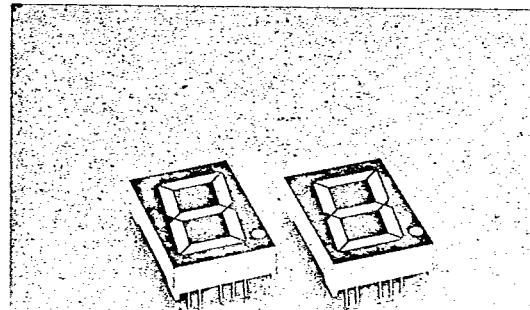


LITEON**LTS-10804/10304
10805A/10305A SERIES****1.0" SINGLE DIGIT NUMERIC DISPLAYS**

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.

SEVEN-SEGMENT LED DISPLAYS
CATHODE ANODE**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.

DEVICES

GREEN	PART NO. LTS-			DESCRIPTION	PACKAGE DIMENSION	INTERNAL CIRCUIT DIAGRAM
	YELLOW	ORANGE	MULTI-COLOR			
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

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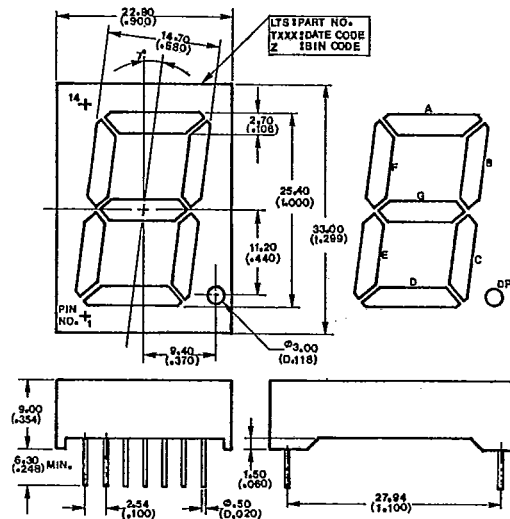
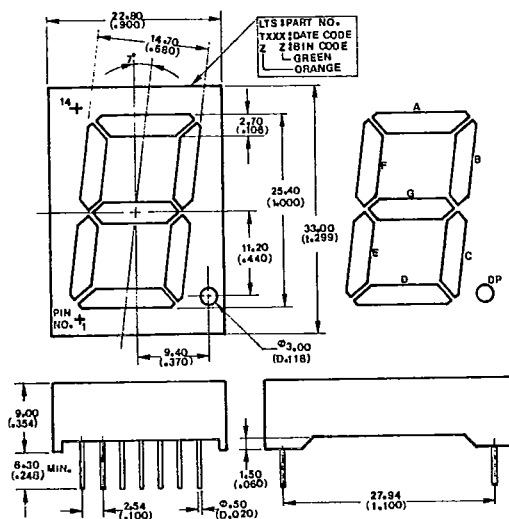
749

T-41-33

PACKAGE DIMENSIONS

A. LTS-10x04

B. LTS-10x05A



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

1. Lead length (from seating plane): minimum value $\frac{+1.00}{-0.00} \text{ mm}$ $\frac{+0.040''}{-0.000''}$ 2. $\frac{\pm 0.25 \text{ mm}}{(0.010'')}$ unless otherwise noted.

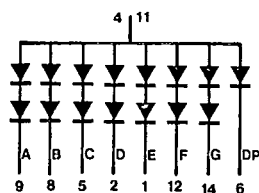
PIN CONNECTION

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

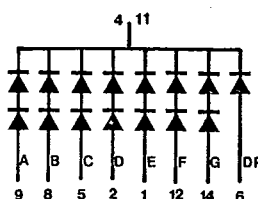
T-41-33

INTERNAL CIRCUIT DIAGRAM

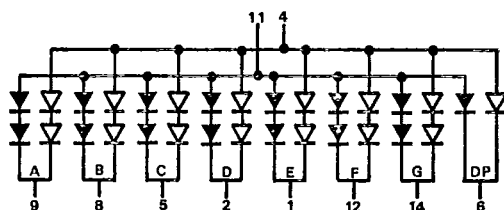
A. LTS-10804



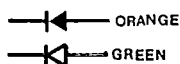
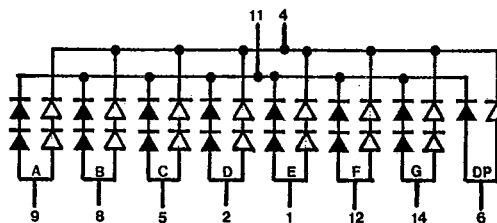
B. LTS-10304



C. LTS-10805A



D. LTS-10305A



SEVEN-SEGMENT LED DISPLAYS
OF ANOMALOUS DISPLAYS

ABSOLUTE MAXIMUM RATINGS AT $T_A = 25^\circ\text{C}$

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				

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751

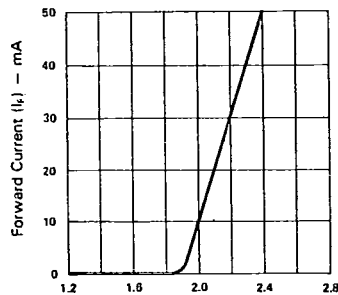
T-41-33

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25^\circ\text{C}$ LTS-10000G/10000A (GREEN)

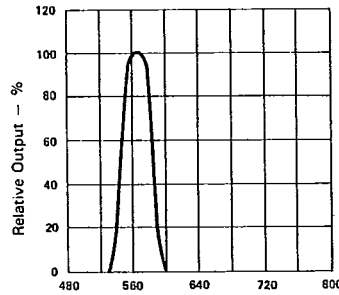
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_v	2.5	4.5		mcd	$I_F = 10\text{ mA}$
Peak Emission Wavelength	λ_p		565		nm	$I_F = 20\text{ mA}$
Spectral Line Half-Width	$\Delta\lambda$		30		nm	$I_F = 20\text{ mA}$
Forward Voltage, any Segment	V_F		4.2 (2.1)	5.6 (2.8)	V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

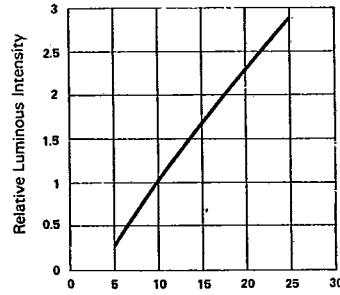
(25°C Ambient Temperature Unless Otherwise Noted)



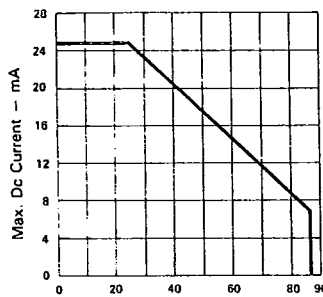
Forward Voltage (V_F) — Volts
Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.



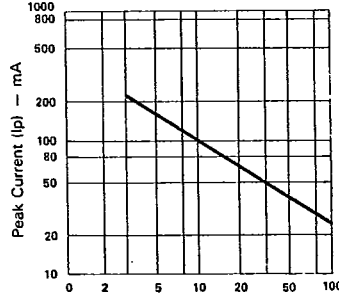
Wavelength (λ) — nm.
Fig. 2 SPECTRAL RESPONSE.



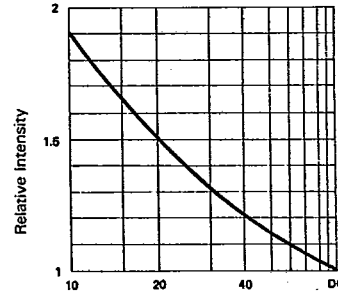
Forward Current (I_F) — mA
Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).



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-10000Y

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)

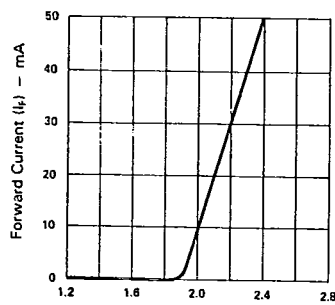


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

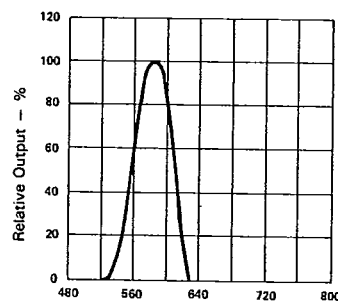


Fig. 2 SPECTRAL RESPONSE.

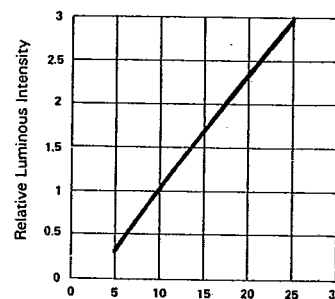


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

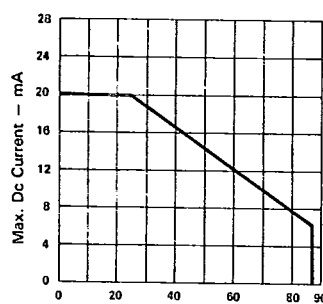


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

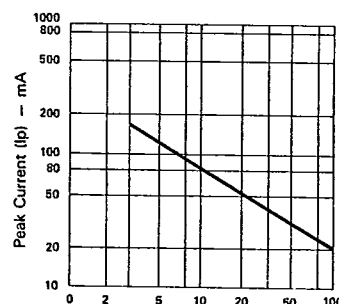
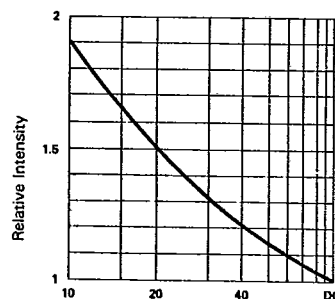


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE. (REFRESH RATE - F = 1 KHz)

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

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25^\circ\text{C}$ 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)

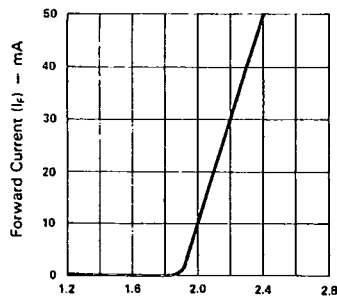


Fig. 1 FORWARD CURRENT vs. FORWARD VOLTAGE.

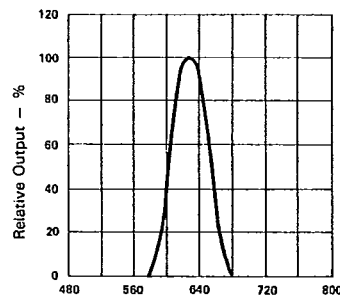


Fig. 2 SPECTRAL RESPONSE.

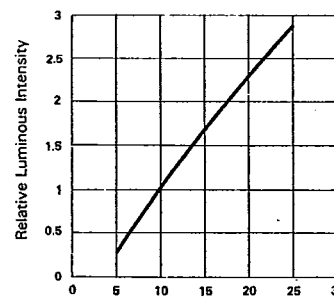


Fig. 3 RELATIVE LUMINOUS INTENSITY vs. FORWARD CURRENT (PER SEGMENT).

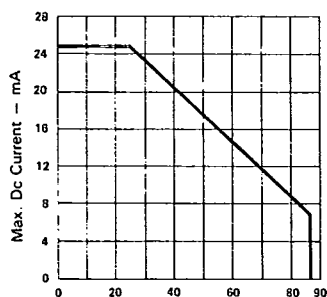


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. vs. AMBIENT TEMPERATURE.

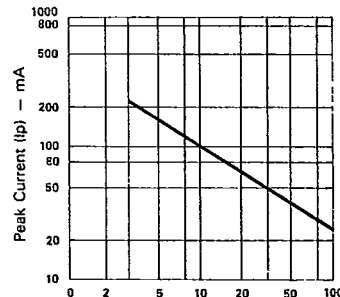


Fig. 5 MAX. PEAK CURRENT vs. DUTY CYCLE. (REFRESH RATE - $F = 1\text{ KHz}$)

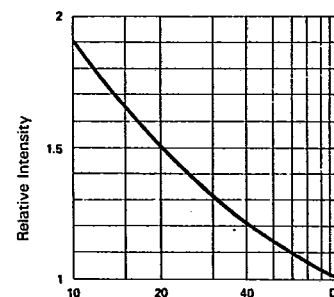


Fig. 6 LUMINOUS INTENSITY vs. DUTY CYCLE. (AVERAGE $I_F = 10\text{ mA PER SEG.}$)

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 3.17mm and 635mm greater than the length of the component involved.

FIG. 1

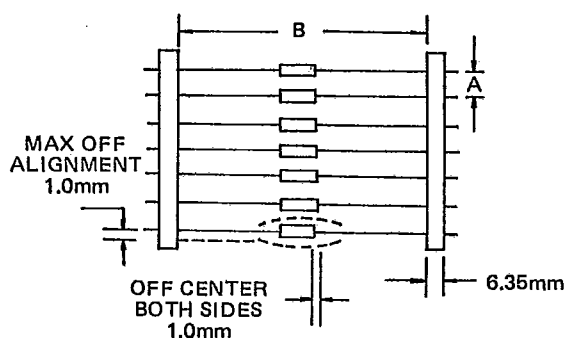


FIG. 2

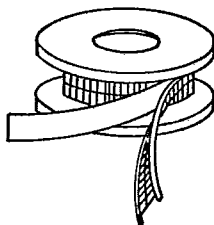
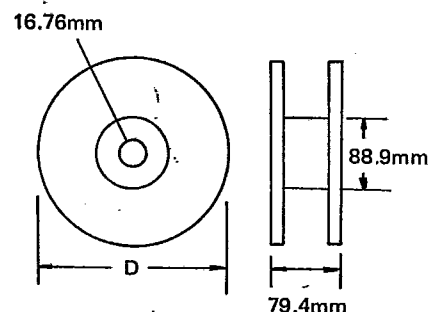


FIG. 3

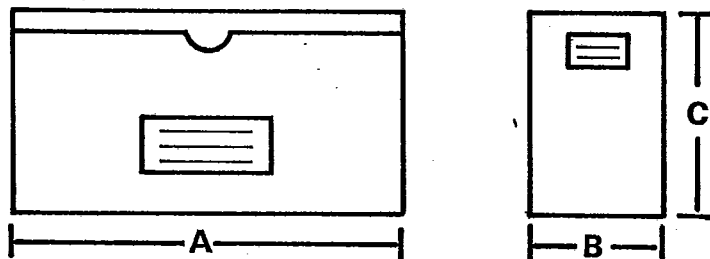


Bulk Packaging (Axial Lead Devices and Bridge Rectifiers)

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.

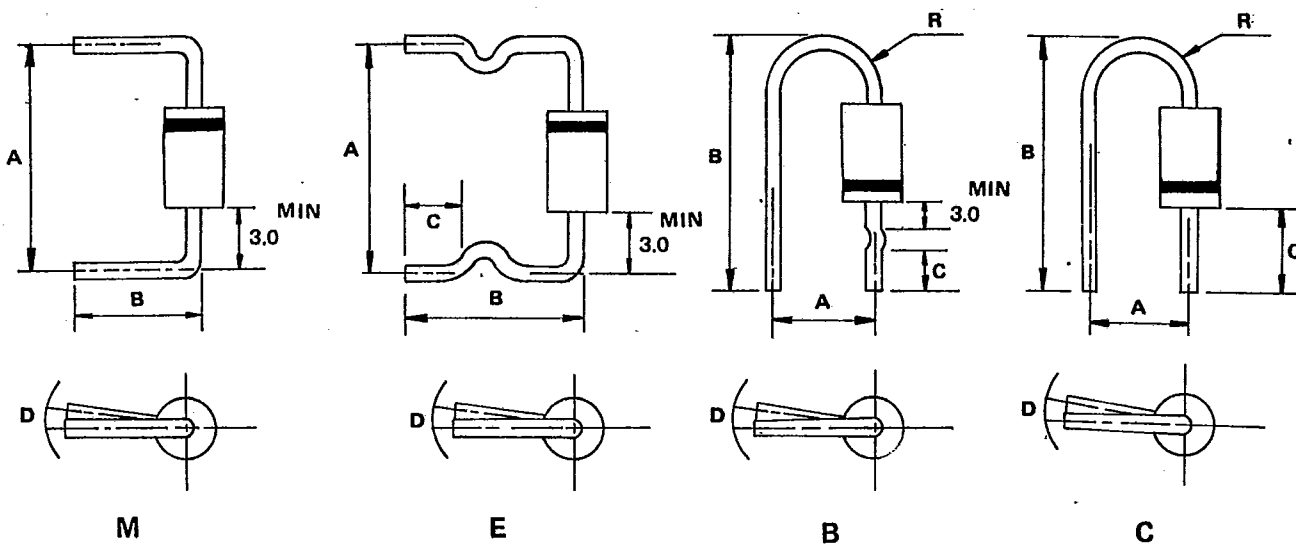
Packaging	Products Outline	Dimension *A*	Dimension *B*	Dimension *C*	Q'ty per BOX
26MM Horizontal Ammo Pack	DO-41 DO-41L(0.6mm Lead)	255	50	95	3K
					3K
52MM Horizontal Ammo Pack	DO-41and DO-41L DO 201AD	250	75	92	3K
					0.8K

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
52MM Horizontal Ammo Pack	DO-41and DO-41L DO 201AD	355	355	340	48K
					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	—	—