

**LITEON****NPN T-1 $\frac{3}{4}$  STANDARD 5 $\phi$   
PHOTODETECTOR**

LTR-3208/3208E

T-41-45

**FEATURES**

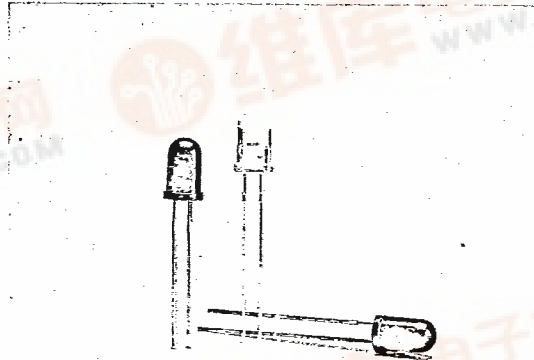
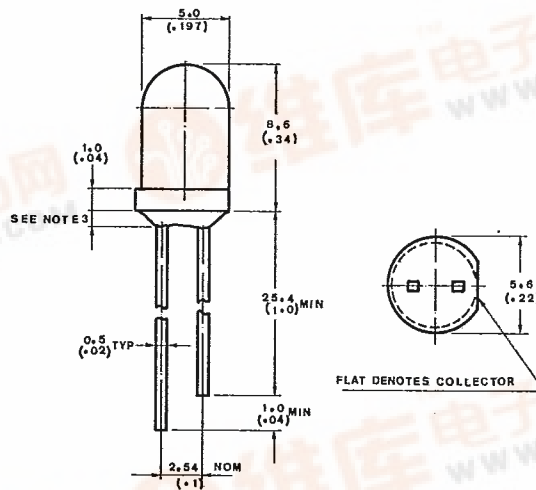
- WIDE RANGE OF COLLECTOR CURRENTS.
- LENSED FOR HIGH SENSITIVITY
- LOW COST PLASTIC PACKAGE.

**DESCRIPTION**

The LTR-3208 series consist of an NPN silicon phototransistor mounted in a lensed, clear plastic, end looking package. The lensing effect of the package allows an acceptance half angle of 10° measured from the optical axis to the half power point. This series is mechanically and spectrally matched to the LTE-4208 series of infrared emitting diodes.

The LTR-3208E is a special dark plastic package that cut the visible light and suitable for the detectors of infrared applications.

All electrical parameters are 100% tested by manufacturing. Specifications are guaranteed to a cumulative .65% AQL.

**PACKAGE DIMENSIONS****NOTES:**

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25\text{mm}$  (.010") unless otherwise noted.
3. Protruded resin under flange is 1.5mm (.059") max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notice.

T-41-45

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

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation	100	mW
Collector-Emitter Voltage	30	V
Emitter-Collector Voltage	5	V
Operating Temperature Range	$-55^\circ\text{C}$ to $+100^\circ\text{C}$	
Storage Temperature Range	$-55^\circ\text{C}$ to $+100^\circ\text{C}$	
Lead Soldering Temperature [1.6mm (0.063 in) From Body]	$260^\circ\text{C}$ for 5 Seconds	

ELECTRICAL CHARACTERISTICS AT  $T = 25^\circ\text{C}$ 

PARAMETER	SYMBOL	PART NO. LTR.	MIN	TYP	MAX	UNIT	TEST CONDITION	REMARK
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		30			V	$I_C = 1\text{mA}$ $E_e = 0\text{mW/cm}^2$	
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$		5			V	$I_E = 100\mu\text{A}$ $E_e = 0\text{mW/cm}^2$	
Collector Emitter Saturation Voltage	$V_{CE(SAT)}$				0.4	V	$I_C = 0.5\text{mA}$ $E_e = 0.5\text{mW/cm}^2$	
Rise Time	$T_r$			5		$\mu\text{S}$	$V_{CC} = 30\text{V}$ $I_C = 800\mu\text{A}$ $R_L = 1\text{k}\Omega$	
Fall Time	$T_f$			5		$\mu\text{S}$		
Collector Dark Current	$I_{CEO}$				100	nA	$V_{CE} = 10\text{V}$ $E_e = 0\text{mW/cm}^2$	
On State Collector Current	$I_{(ON)}$	3208	1	4		mA	$V_{CE} = 5\text{V}$ $E_e = 1\text{mW/cm}^2$	
		3208E	1	2		mA	$\lambda = 940\text{nm}$	



**TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES**

(25°C Ambient Temperature Unless Otherwise Noted)

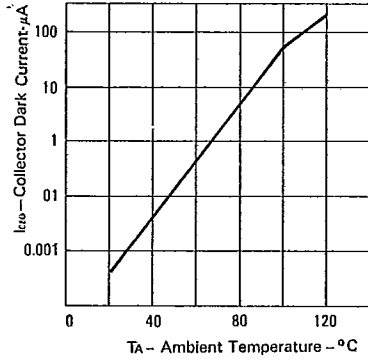


FIG. 1 COLLECTOR DARK CURRENT VS AMBIENT TEMPERATURE

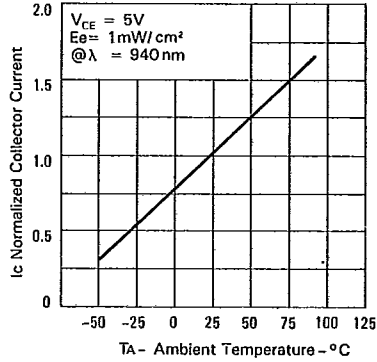


FIG. 2 NORMALIZED COLLECTOR CURRENT VS AMBIENT TEMPERATURE

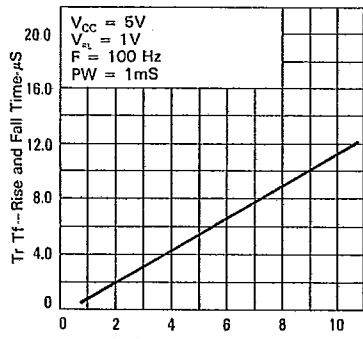


FIG. 3 RISE AND FALL TIME VS LOAD RESISTANCE

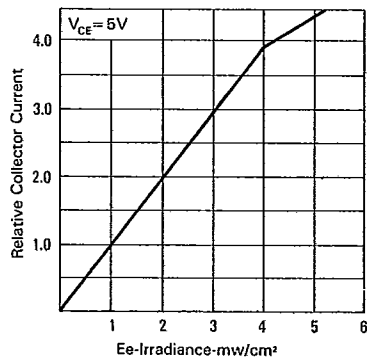


FIG. 4 RELATIVE COLLECTOR CURRENT VS IRRADIANCE

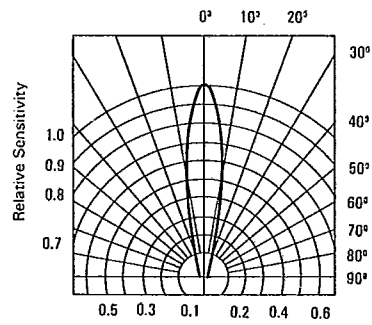


FIG. 5 SENSITIVITY DIAGRAM

# 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

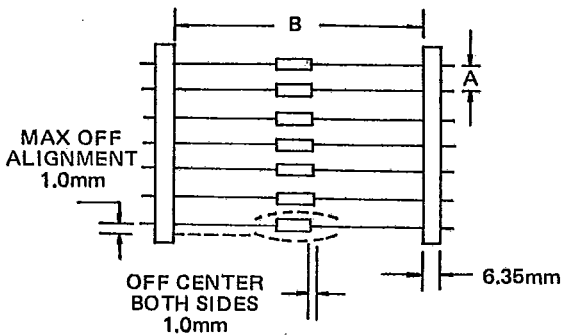


FIG. 2

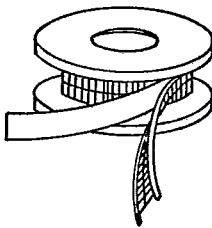
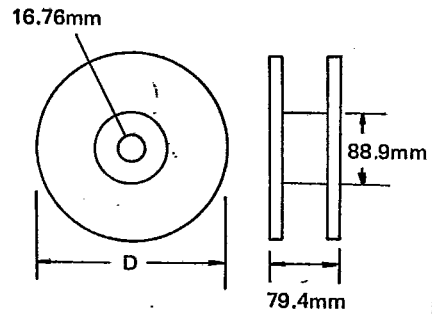


FIG. 3

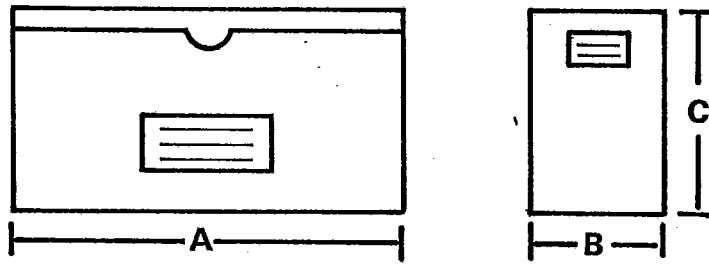


## Bulk Packaging (Axial Lead Devices and Bridge Rectifiers)

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.

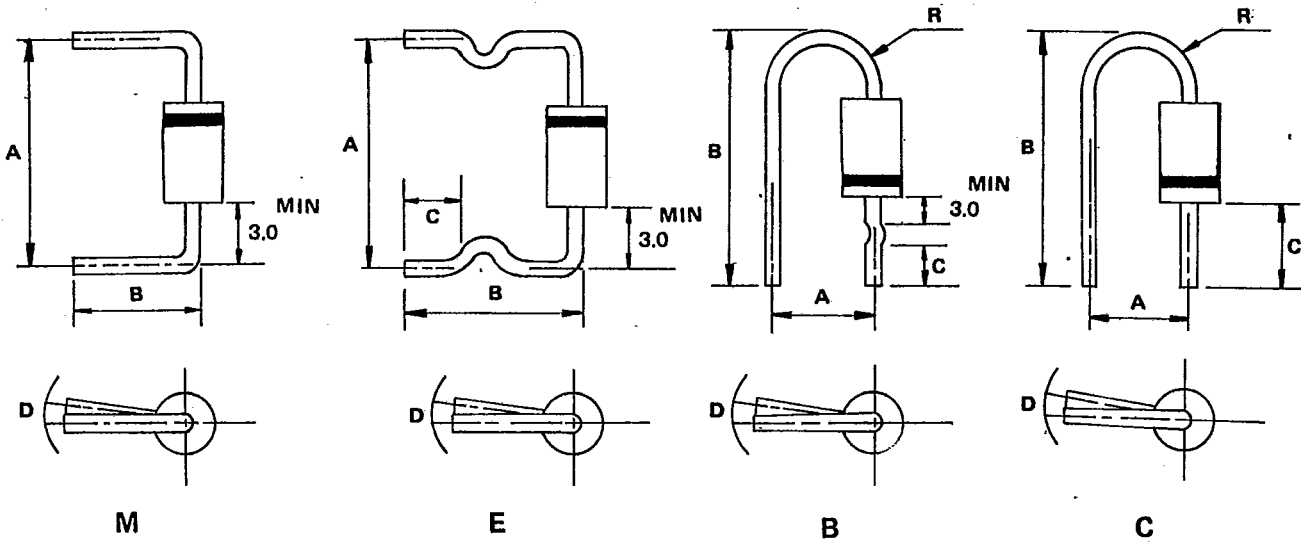
Packaging	Products Outline	Dimension 'A'	Dimension 'B'	Dimension 'C'	Q'ty per BOX
26MM Horizontal Ammo Pack	DO-41	255	50	95	3K
	DO-41L(0.6mm Lead)				3K
52MM Horizontal Ammo Pack	DO-41 and DO-41L	250	75	92	3K
	DO 201AD				0.8K

**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-41 and 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
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	—	—

