

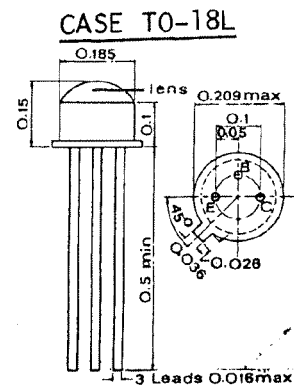
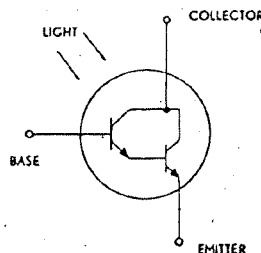
# MAL11 MAL12

NPN

SILICON PHOTO

DARLINGTON TRANSISTORS

The MAL11, MAL12 are NPN silicon photo darlington transistors for use in sensitive photo detector circuits. They are supplied in selected light current groups.



All dimensions in inches

## ABSOLUTE MAXIMUM RATINGS

Collector-Emitter Voltage

$V_{CEO}$

30V

25V

Emitter-Collector Voltage

$V_{ECO}$

5V

Collector Current

$I_C$

100mA

Total Power Dissipation ( $T_A \leq 25^\circ\text{C}$ )

$P_{tot}$

300mW

Operating Junction & Storage Temperature

$T_j, T_{stg}$

-55 to +100°C

## ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

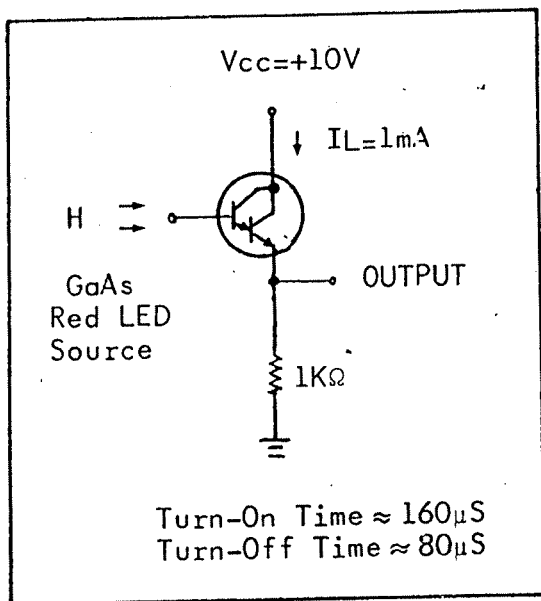
PARAMETER	SYMBOL	MAL11			MAL12			UNIT	TEST CONDITIONS	
		MIN	TYP	MAX	MIN	TYP	MAX			
Collector-Emitter Breakdown Voltage	$LV_{CEO}^*$	30	50		25	40		V	$I_C=10\text{mA}$ (Pulsed) $I_B=0$	
Emitter-Collector Breakdown Voltage	$BV_{ECO}^*$	5	8.5		5	8.5		V	$I_E=0.1\text{mA}$ $I_B=0$	
Collector Cutoff Current (Dark current)	$ICEO^*$			0.2			0.5	$\mu\text{A}$	$V_{CE}=5\text{V}$ $I_B=0$	
Light Current	Group A Group B Group C Group D	$I_L^{**}$	0.5	1	2				mA	$V_{CE}=3\text{V}$ $H=2\text{mW}/\text{cm}^2$
			1	2	4	1	2	4	mA	
			3	5	10	3	5	10	mA	
			7	12	20	7	12	20	mA	

\* Tested in complete darkness.

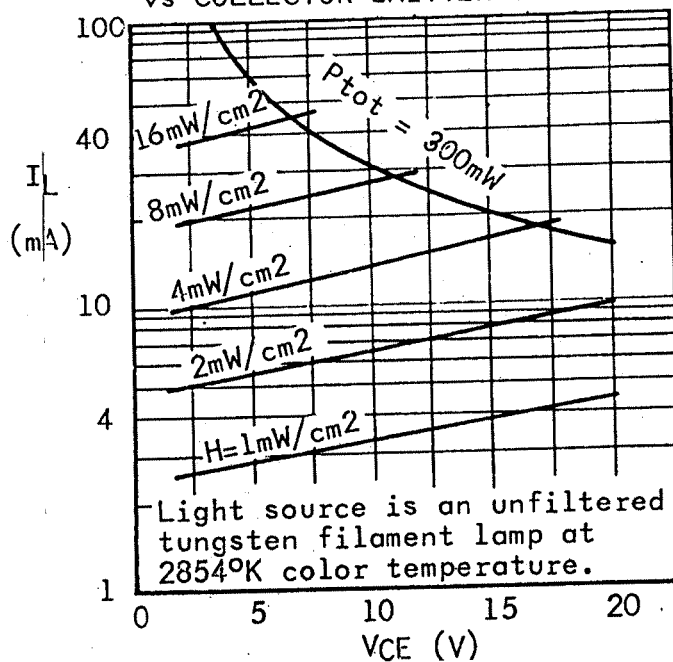
\*\* The light current is the collector to emitter current measured at specified irradiance (H). The radiation source is an unfiltered tungsten filament lamp at 2874°K color etperature.

# TYPICAL CHARACTERISTICS AT $T_A=25^\circ\text{C}$

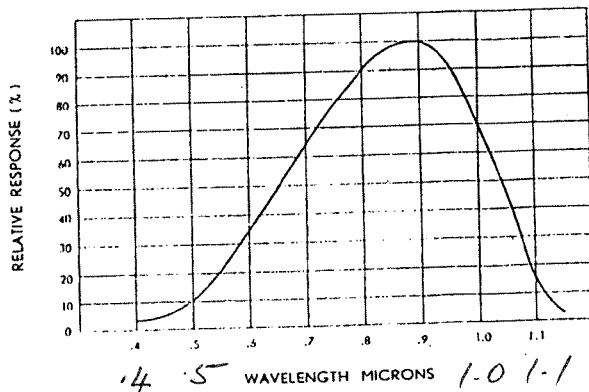
## SWITCHING TIME



## LIGHT CURRENT vs COLLECTOR-EMITTER VOLTAGE



## SPECTRAL RESPONSE



## RELATIVE RESPONSE VS. INCIDENT ANGLE

