

## ST - 1MLAR2 · ST - 1MLBR2

The ST - 1MLAR2 and 1MLBR2 are high - sensitivity NPN silicon phototransistors mounted in a TO - 18 Type header with black epoxy encapsulation. With daylight filter the phototransistor is sensitive only to infrared rays.

**FEATURES**

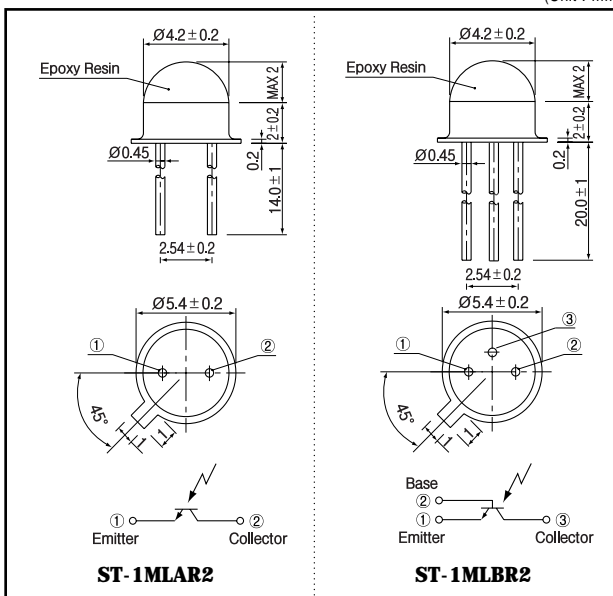
- Wide angular response
- Relatively low - cost against metal can package
- Low profile package
- With daylight filter

**APPLICATIONS**

- Remote control sensors
- Card readers
- Optical switches

**DIMENSIONS**

(Unit : mm)

**MAXIMUM RATINGS**

(Ta = 25 °C)

Item	Symbol	Rating	Unit
C - E voltage	$V_{CE0}$	40	V
E - C voltage	$V_{ECO}$	4	V
Collector current	$I_C$	30	mA
Collector power dissipation	$P_C$	100	mW
Operating temp.	$T_{opr.}$	- 25 ~ + 90	
Storage Temp.	$T_{stg.}$	- 30 ~ + 100	
Soldering temp. *1	$T_{sol.}$	260	

\*1. For MAX.5 seconds at the position of 2 mm from the package

**ELECTRO-OPTICAL CHARACTERISTICS**

(Ta = 25 °C)

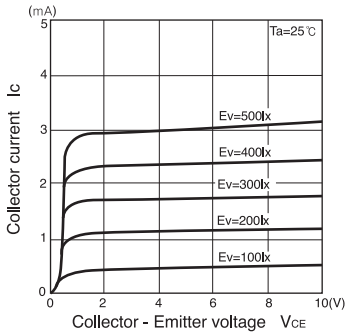
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Collector dark current	$I_{CE0}$	$V_{CE0} = 10V$		1	200	nA
Light current	$I_L$	$V_{CE} = 10V, 200lx^{-1/2}$	0.5	1.2	5.0	mA
C - E saturation voltage	$V_{CE(sat)}$	$I_C = 2mA, 2,000lx^{-1/2}$		0.2	0.4	V
Switching speeds	Rise time	$V_{CC} = 10V, I_C = 5mA, R_L = 100$		8		µsec.
	Fall time			10		µsec.
Spectral sensitivity				720 ~ 1,050		nm
Peak wavelength	$\lambda_p$			940		nm
Half angle				± 70		deg.

\*2. Color temp. = 2856K standard Tungsten lamp

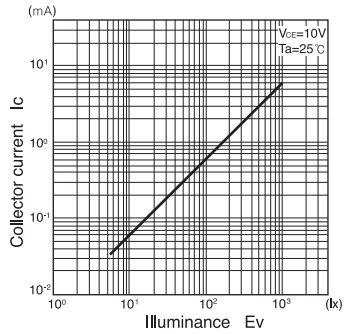
## Photo transistors

ST - 1 MLAR2 · ST - 1 MLBR2

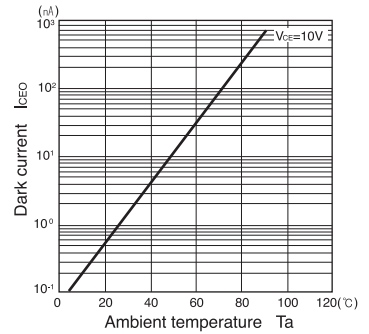
**Collector current Vs.  
Collector - Emitter voltage**



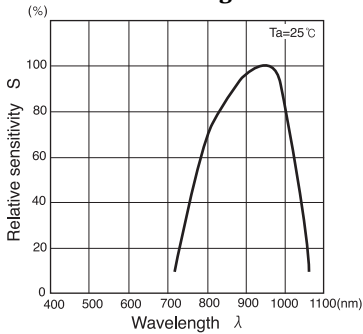
**Collector current Vs.  
Illuminance**



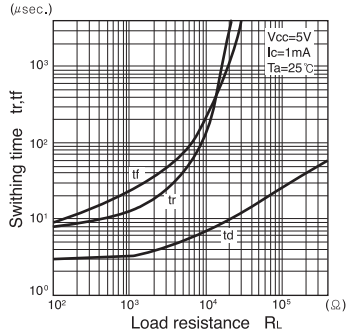
**Dark current Vs.  
Ambient temperature**



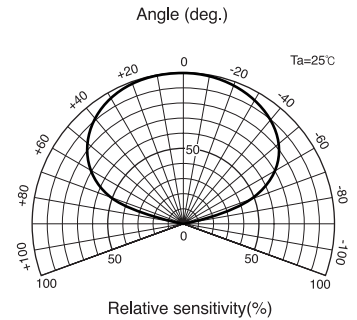
**Relative sensitivity Vs.  
Wavelength**



**Switching time vs.  
Load resistance**



**Radiant Pattern**



**Collector power dissipation Vs.  
Ambient temperature**

