

Photo transistors

KODENSHI

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

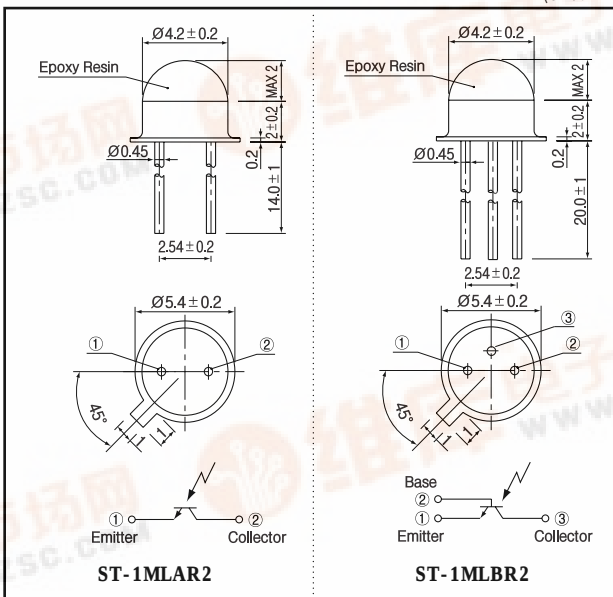
- Wide angular response
- Relatively low - cost against metal can package
- Low profile package
- With daylight filter

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	°C
Storage Temp.	$T_{stg.}$	- 30 ~ + 100	°C
Soldering temp. ¹⁾	$T_{sol.}$	260	°C

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	$V_{CE} = 10V, 200lx^{-2}$	0.5	1.2	5.0	mA
C - E saturation voltage	$V_{CE(sat)}$	$I_C = 2mA, 2,000lx^{-2}$		0.2	0.4	V
Switching speeds	Rise time t_r	$V_{CC} = 10V, I_C = 5mA, R_L = 100\Omega$		8		$\mu sec.$
	Fall time t_f			10		$\mu sec.$
Spectral sensitivity	λ			720 ~ 1,050		nm
Peak wavelength	λ_p			940		nm
Half angle	$\Delta \theta$			± 70		deg.

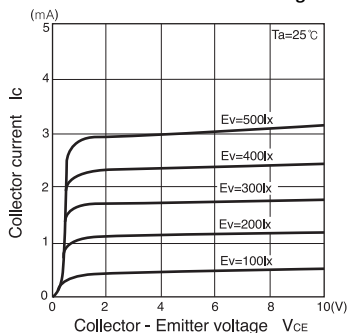
²⁾ Color temp. = 2856K standard Tungsten lamp



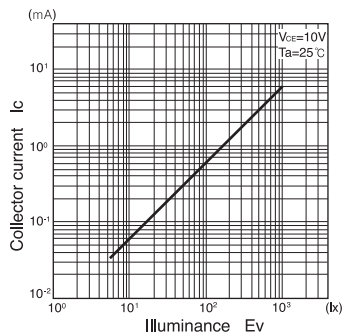
Photo transistors

ST - 1MLAR2 · ST - 1MLBR2

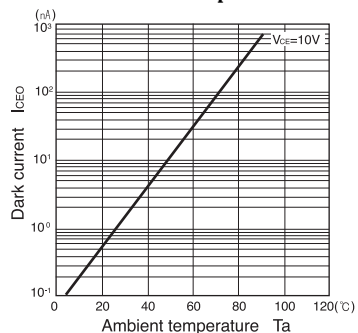
**Collector current Vs.
Collector - Emitter voltage**



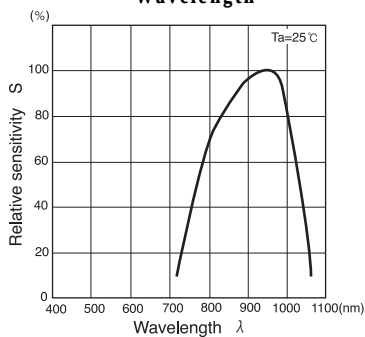
**Collector current Vs.
Illuminance**



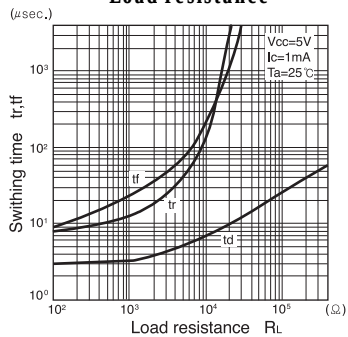
**Dark current Vs.
Ambient temperature**



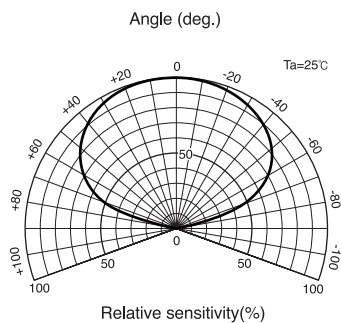
**Relative sensitivity Vs.
Wavelength**



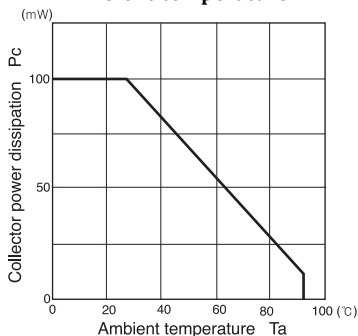
**Switching time vs.
Load resistance**



Radiant Pattern



**Collector power dissipation Vs.
Ambient temperature**



*** Switching time measurement circuit**

