

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

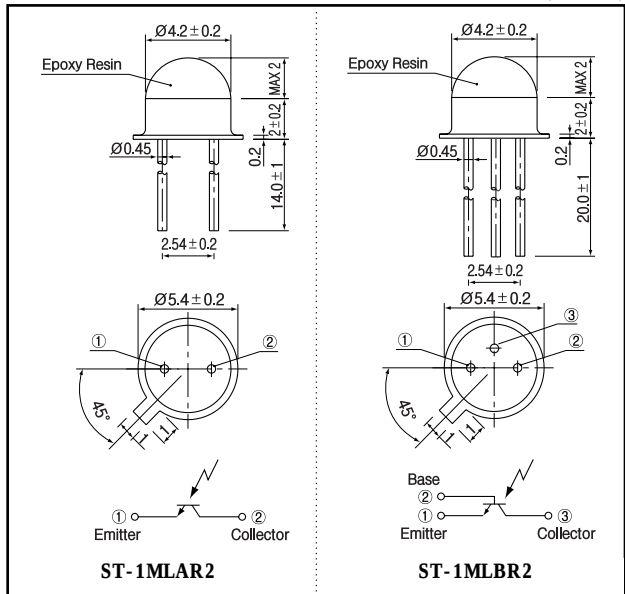
- Wide angular response
- Relatively low - cost against metal can package
- Low profile package
- With daylight filter

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)

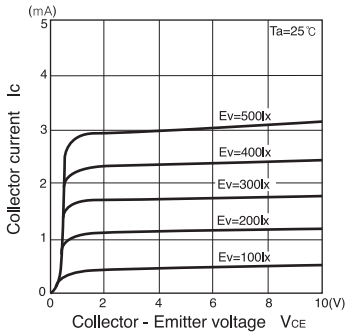
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Collector dark current	I_{CE0}	$V_{CE0} = 10V$		1	200	nA
Light current	I_L	$V_{CE} = 10V, 200lx^{-1}$	0.5	1.2	5.0	mA
C - E saturation voltage	$V_{CE(sat)}$	$I_C = 2mA, 2,000lx^{-1}$		0.2	0.4	V
Switching speeds	Rise time	$V_{CC} = 10V, I_C = 5mA, R_L = 100\Omega$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

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

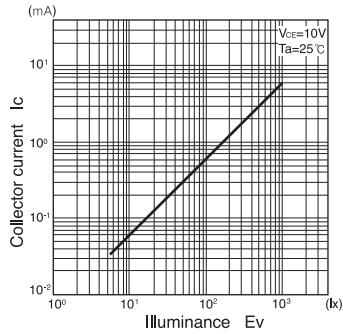
Photo transistors

ST - 1MLAR2 · ST - 1MLBR2

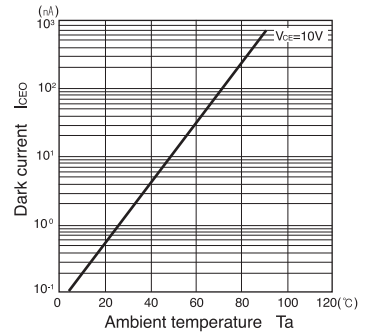
**Collector current Vs.
Collector - Emitter voltage**



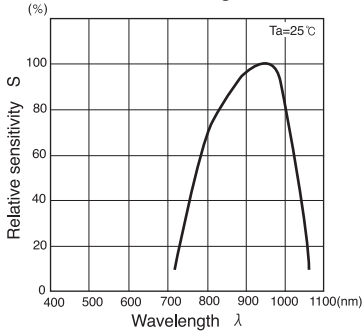
**Collector current Vs.
Illuminance**



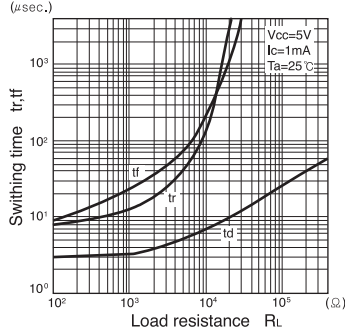
**Dark current Vs.
Ambient temperature**



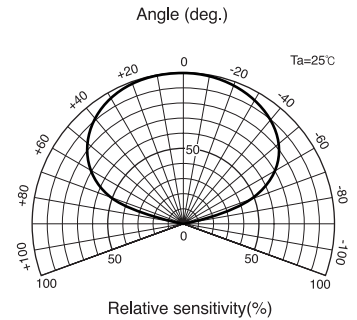
**Relative sensitivity Vs.
Wavelength**



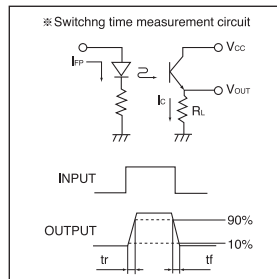
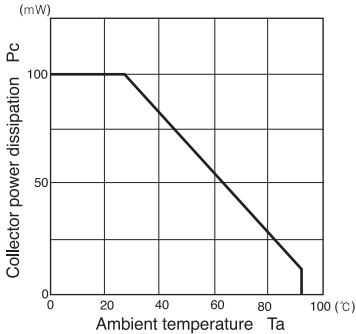
**Switching time vs.
Load resistance**



Radiant Pattern



**Collector power dissipation Vs.
Ambient temperature**



No.	DEVICE	항목	LIMIT	COND.
99	ST-1KLAX	BVceo	40.0V↑	1mA
		BVeco Iceo Icel	4.0V↑ 70nA↓ A:1.0~2.49 B:2.5~5.49 C:5.5~9.99 D:10.0mA↑	50μA 10V 1000Lux, 3V
100	ST-1KLAZ	BVceo BVeco Iceo Icel	40.0V↑ 4.0V↑ 200nA↓ 4.0mA↑	0.5mA 50μA 10V 500Lux, 10V
101	ST-1KLB	BVceo BVeco BVcho Iceo Icel	40.0V↑ 4.0V↑ 55.0V↑ 200nA↓ A:1.8~4.0 B:3.2~4.4 C:3.6~5.3 D:4.3~6.6 E:5.4~7.5 G:6.1~13.0 H:10.8mA↑	1mA 50μA 50μA 10V 200Lux, 10V
102	ST-1MLAR2	BVceo BVeco Iceo Icel	40.0V↑ 4.0V↑ 200nA↓ A:0.5~1.3 B:1.1~1.8 C:1.4~2.2 D:1.8~2.4 E:2.0mA↑	1mA 50μA 10V 200Lux, 10V
103	ST-1MLAZ	BVceo BVeco Iceo Icel	40.0V↑ 4.0V↑ 200nA↓ 1.5mA↑	0.5mA 50μA 10V 500Lux, 10V
104	ST-1MLB	BVceo BVeco BVcho Iceo Icel	40.0V↑ 4.0V↑ 55.0V↑ 200nA↓ A:0.6~1.3 B:1.1~2.2 C:1.8~3.1 D:2.5mA↑	1mA 50μA 50μA 10V 200Lux, 10V

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