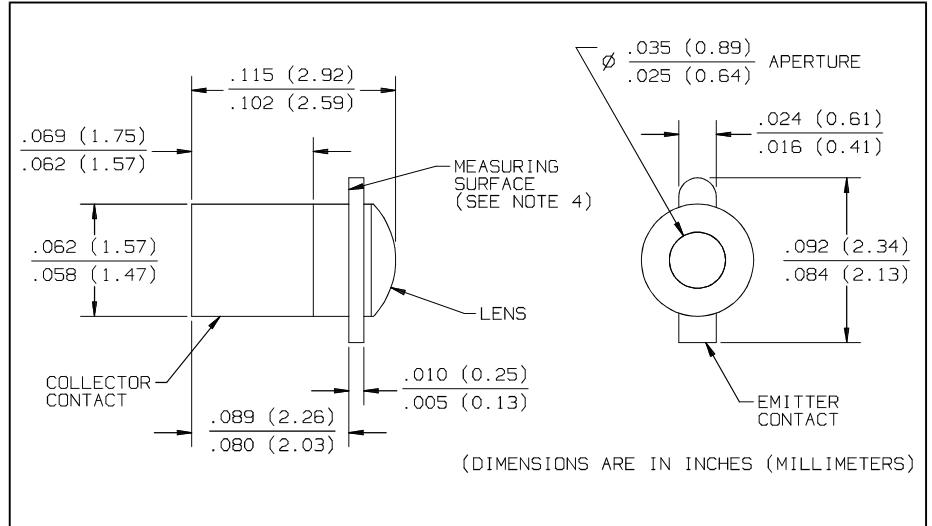


# Hi-Reliability NPN Silicon Phototransistors

## Types OP602TX/V, OP603TX/V, OP604TX/V, OP604S



### Features

- Processed to Optek's military screening program patterned after MIL-PRF-19500
- Miniature hermetically sealed package
- Wide range of collector currents
- Ideal for direct mounting in PC boards

### Description

Each device in this series consists of a high reliability NPN silicon phototransistor mounted in a miniature glass lensed, hermetically sealed, "Pill" package.

After electrical testing by manufacturing, all devices are processed to Optek's 100% screening program patterned after MIL-PRF-19500. Typical screening and lot acceptance tests are provided on page 13-4.

This device type is lensed and has an acceptance half angle of 18° measured from the optical axis to the half power point. The series is also mechanically and spectrally matched to the OP223 and OP224 high reliability series of infrared emitting diodes.

### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Storage Temperature Range	-65° C to +150° C
Operating Temperature Range	-55° C to +125° C
Collector-Emitter Voltage	50 V
Emitter-Collector Voltage	7.0 V
Soldering Temperature (for 5 seconds with soldering iron)	240° C <sup>(1)</sup>
Power Dissipation	50 mW <sup>(2)</sup>

#### Notes:

- (1) No-clean or low solids, RMA flux is recommended. Duration can be extended to 10 sec. max. when wave soldering.
- (2) Derate linearly 0.5 mW/° C above 25° C.
- (3) Junction temperature maintained at 25° C.
- (4) Light source is an unfiltered tungsten lamp operating at CT = 2870 K or equivalent source.

# Types OP602TX/V, OP603TX/V, OP604TX/V, OP604S

Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
$I_{C(on)}$	On-State Collector Current					
	OP602TX, TXV	2.0		5.0	mA	$V_{CE} = 5.0\text{ V}, E_e = 20\text{ mW/cm}^2(3)(4)$
	OP603TX, TXV	4.0		8.0	mA	$V_{CE} = 5.0\text{ V}, E_e = 20\text{ mW/cm}^2(3)(4)$
	OP604TX, TXV, S	7.0			mA	$V_{CE} = 5.0\text{ V}, E_e = 20\text{ mW/cm}^2(3)(4)$
$I_{CEO}$	Collector Dark Current			25	nA	$V_{CE} = 10.0\text{ V}, E_e = 0$
				100	$\mu\text{A}$	$V_{CE} = 30.0\text{ V}, E_e = 0, T_A = 100^\circ\text{C}$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	50			V	$I_C = 100\text{ }\mu\text{A}, E_e = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	7.0			V	$I_E = 100\text{ }\mu\text{A}, E_e = 0$
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.40	V	$I_C = 0.4\text{ mA}, E_e = 20\text{ mW/cm}^2(3)(4)$
$t_r$	Rise Time			20.0	$\mu\text{s}$	$V_{CC} = 30\text{ V}, I_C = 1.00\text{ mA}, R_L = 100\text{ }\Omega$
$t_f$	Fall Time			20.0	$\mu\text{s}$	