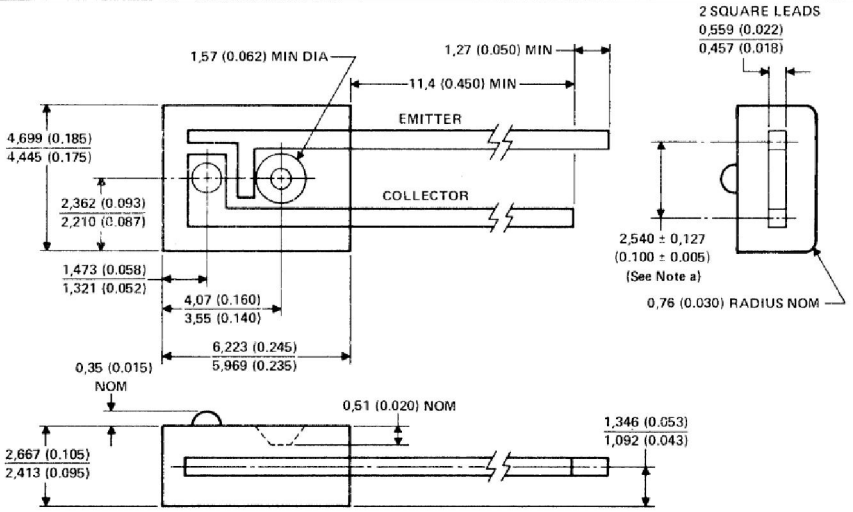
TYPE TIL411
N-P-N SILICON PHOTOTRANSISTOR

D2559, JULY 1980

- Recommended for Applications Requiring Low-Cost Discrete Phototransistors
- Spectrally and Mechanically Compatible with TIL40 Infrared Emitter
- Designed for use in Housings or Printed Circuit Boards

mechanical data

This device has a clear molded plastic body.



NOTE a: Lead spacing is measured where the leads emerge from the package.

ALL DIMENSIONS ARE IN MILLIMETERS AND PARENTHETICALLY IN INCHES

CL-67

absolute maximum ratings at 25°C free-air temperature (unless otherwise noted)

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	7 V
Continuous Collector Current	50 mA
Continuous Device Dissipation at (or below) 25°C Free-Air Temperature (see Note 1)	50 mW
Operating Free-Air Temperature Range	−40°C to 80°C
Storage Temperature Range	−40°C to 100°C
Lead Temperature 1,6 mm (1/16 inch) from Case for 5 Seconds	240°C

electrical characteristics at free-air temperature

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = 100 μA, E_e = 0	30			V
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	I_E = 100 μA, E_e = 0	7			V
I_D	Dark Current	V_{CE} = 5 V, E_e = 0			100	nA
I_L	Light Current	V_{CE} = 5 V, E_e = 500 μW/cm², See Note 2	100	400		μA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 80 μA, E_e = 500 μW/cm², See Note 2		0.15		V

switching characteristics at 25°C free-air temperature

PARAMETER		TEST CONDITIONS		TYP	MAX	UNIT
t_r	Rise Time	V_{CC} = 10 V,	I_L = 100 μA,	25		μs
t_f	Fall Time	R_L = 1 kΩ,	See Figure 1	25		μs

NOTES: 1. Derate linearly to 80°C free-air temperature at the rate of 0.91 mW/°C.

2. Irradiance (E_e) is the radiant power per unit area incident upon a surface. For these measurements the source is an infrared-emitting diode, wavelength at peak emission is 930 nm, and spectral bandwidth is 45 nm.

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