

General Description

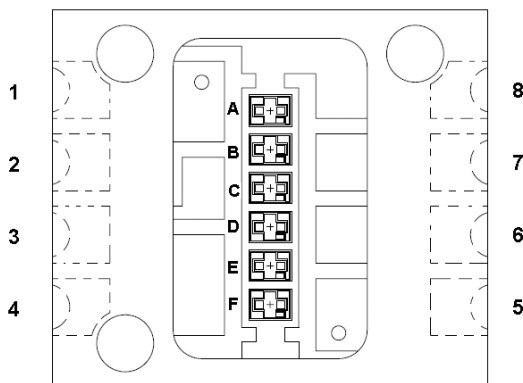
OIT25C consists in a six single diced silicon phototransistor. The phototransistors have a common collector on the back substrate, which is tied to a single pad and every emitter is accessible to specific pad. The optical pitch of the array is 0.68 mm, the LCC package electrical pitch is 1.27 mm. The active area of each element is 0.20 x 0.45 mm².

The advantages of this product are the high uniformity of the silicon sensors and to the extremely controlled microelectronic process, the high stability of the signal and the high optical responsivity, due to the antireflective coating deposited on the phototransistor's areas.

The device is protected with a thin plastic film, that is resistant to reflow oven processes. The film has to be removed once the device has been assembled on the electronic board and the user can attach the optical reticle. Two reference marks are available for the precise collimator positioning.

Applications

Optical encoders
Incremental encoders
Optical Receivers
Controls/drives



TOP VIEW



Features

- Resistant to automatic soldering processes
- MSL2
- High uniformity of silicon cells
- High temperature range
- High gain
- Reference holes for precise mounting
- Reference dots for very precise mounting
- Reticle assembly service available

Pin Functions

No.	Name	Function
1	N.C.	Not connected
2	AE	Phototransistor A Emitter
3	CE	Phototransistor C Emitter
4	EC	Phototransistor E Emitter
5	FE	Phototransistor F Emitter
6	DE	Phototransistor D Emitter
7	BE	Phototransistor B Emitter
8	CC	Common collector

Ordering Information

OIT25C-NR 6-ch. phototransistor array 0.68mm optical pitch on plastic SMD package, no encapsulant

OIT25C-NR

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Min	Max	Unit
T _A	Operating Temperature Range	-40	100	°C
T _S	Storage Temperature	-40	100	°C
T _{Sol}	Lead Temperature (solder) 3s		230	°C
V _{R(BR)}	Breakdown Voltage Collector-Emitter @ T _A =25°C I _B =100nA I _C =1mA	50		V
P _D	Power Dissipation @ T _A =25°C		150	mW
ESDS	Electrostatic Discharge Susceptibility (Human Body Model, ESCC20800)		3	class

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rated conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I _D	Dark Current	V _R =10V		5	100	nA
R _A	Responsivity	V _{CE} =5V λ=880nm	0.5			A/W
λ _p	Peak Responsivity	V _{CE} =5V		750		nm
Δλ	Spectral Bandwidth @ 50%	V _{CE} =5V	500		950	nm
I _{ec0}	Emitter-Collector Current	V _{CE} =7.7V		0.1	100	μA
I _{ce0}	Collector-Emitter Current	V _{CE} =52V		0.1	100	μA
H _{FE}	Gain	V _{CC} =5V I _C =2mA	500	1100	2000	
V _{CE(sat)}	Saturation Voltage	I _E =2mA I _B =20μA		80	200	mV
I _{C(on)}	On-state Collector Current	V _{CE} =5V E _E =1.0mW/cm ²		1		mA

AC SWITCHING CHARACTERISTICS

T_A = 25°C unless otherwise noted.

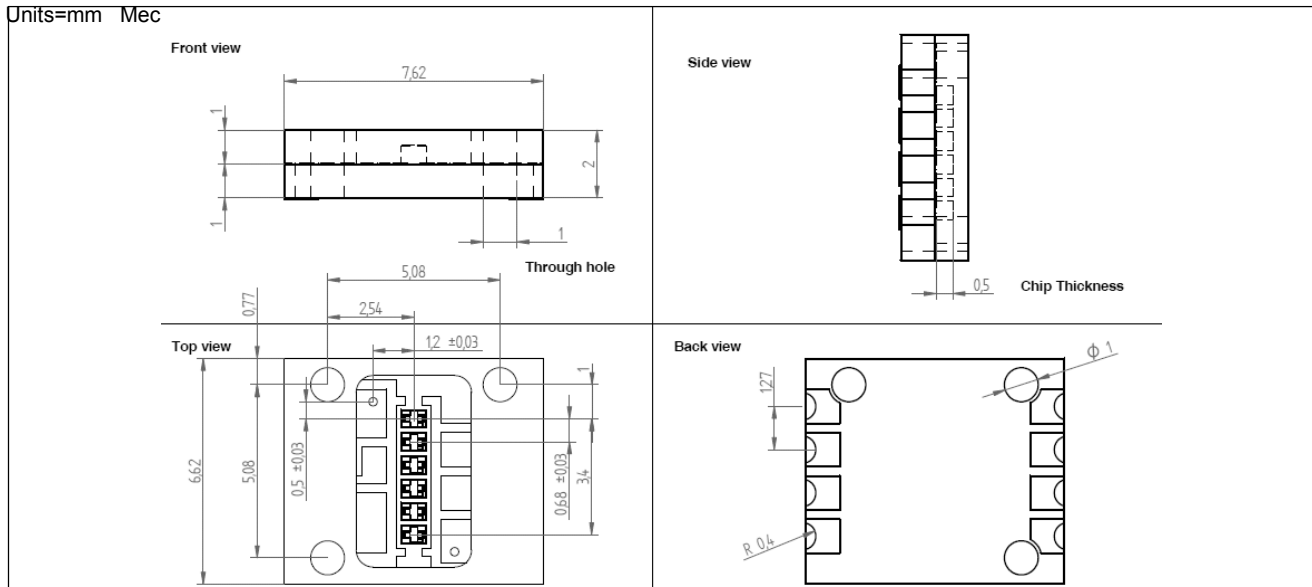
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
t _R	Rise Time	V _{CC} =5V I _C =1mA R ₁ =1kΩ		10		μs
t _F	Fall Time	V _{CC} =5V I _C =1mA R ₁ =1kΩ		11		μs

MECHANICAL CHARACTERISTICS

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
A	Phototransistor Active Area			0.09		mm ²
L	Length of the Active Area			0.2		mm
W	Width of the Active Area			0.45		mm

MECHANICAL DIMENSIONS

Units=mm Mec



PACKAGE CHARACTERISTICS

Symbol	Parameter	Value	Unit
S _F	Pad Surface Finishing	GOLD	
S _L	Pad Shelf Life	6	months
MSL	Moisture Sensitive Level † (see note at bottom page)	2	level

TYPICAL PERFORMANCE CURVES

Figure 1 – Output voltage Vs Temperature

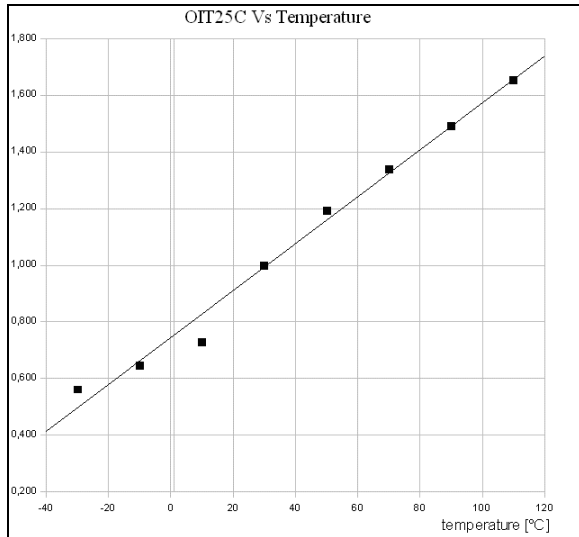
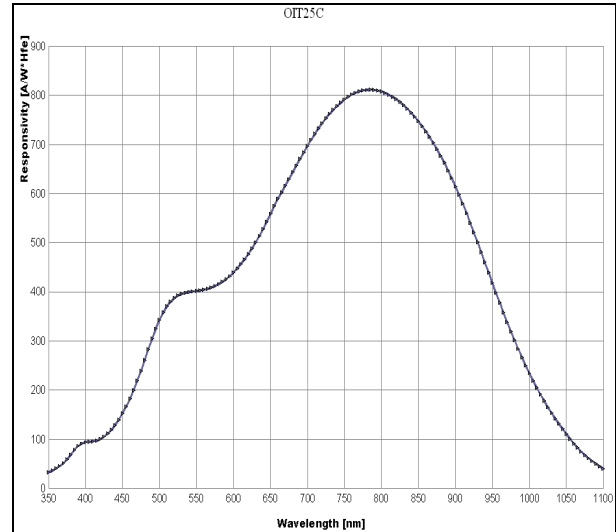


Figure 2 – Normalized spectral responsivity



† According to Jedec standard J-STD-020D.1