Marktech Optoelectronics

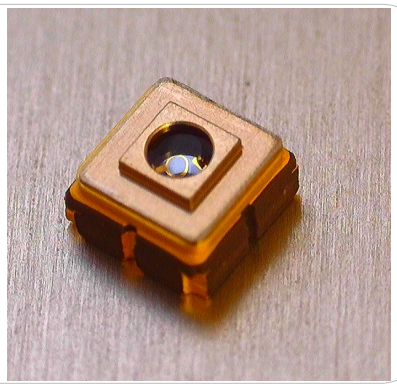
Preliminary

High Speed InGaAs PIN Photodiode

Product No: **MTSM1346SMF1-030**

Sensitivity Wavelength Range: 600nm ~ 1750nm

The 1346 series from Marktech, a high sensitivity and high reliability product series, is ideally suited for Optical Communication devices. Custom packaging options for this die are also available.



FEATURES

> High Speed Response (Max: 2Gbps)
> Seam Welded Surface Mount Package
> Active Area of 0.3mm / High Sensitivity
> Spectral Range: 600nm - 1750nm
> Hermetically Sealed

APPLICATIONS

> High Speed Optical Communications
> Industrial Controls
> Optical Switches
> LIDAR
> Medical

Absolute Maximum Ratings (Ta=25°C)

ITEMS	SYMBOL	RATINGS	UNIT
Active Area	Φ	0.3	mm
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +125	°C

Note: Also available on PCB - Starboard MTSM1346SMF1-030S (See Page 3)

Electrical & Optical Characteristics (Ta = 25°C)

ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Breakdown Voltage	VR	IR=10uA	--	--	1	V
Sensitivity Range	λ	VR=0V	600	--	1750	nm
Dark Current	ID	VR=0V	--	0.025	--	nA
Dark Current	ID	VR=1V	--	16	--	nA
Junction Capacitance	C	VR=0V	--	12	--	pF
Junction Capacitance	C	VR=1V	--	10	--	pF
Responsivity	R	λ=1650nm	--	0.74	--	A/W
Quantum Efficiency	QE	λ=1660nm	--	55	--	%
Shunt Resistance	RSH	VR=10mV	--	12	--	MΩ
Light Current @λ=1300nm	IL	If=10mA	--	35	--	μA
Light Current @λ=1300nm	IL	If=20mA	--	65	--	μA

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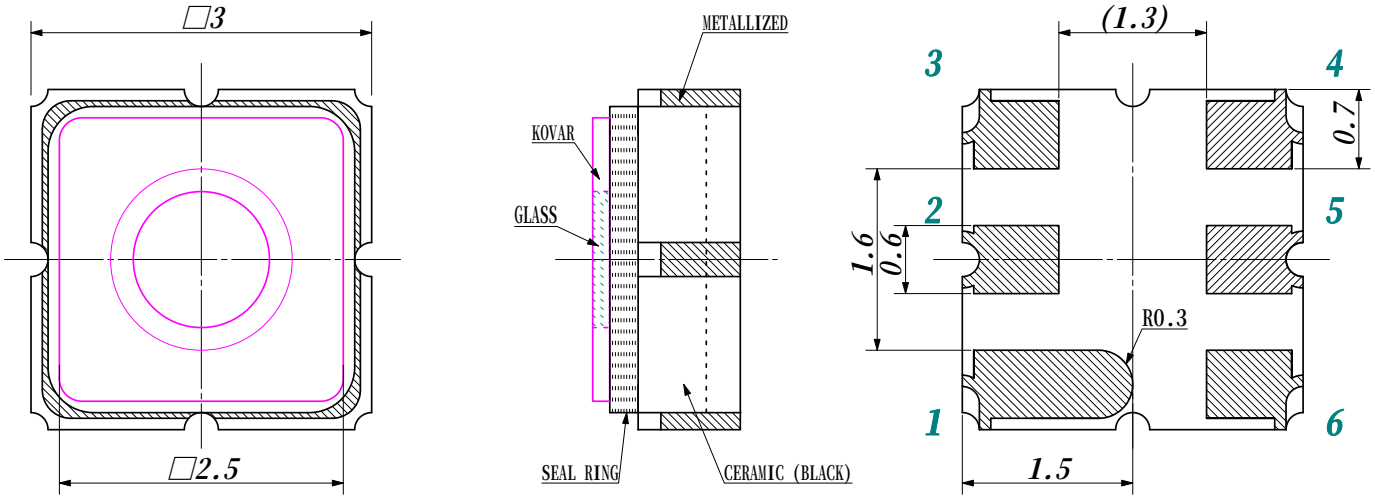
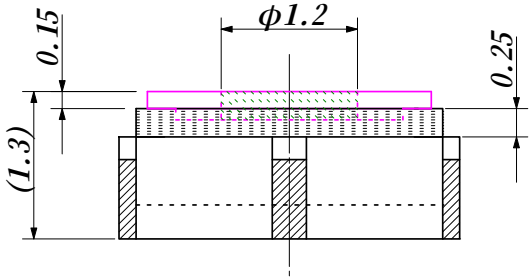
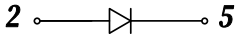


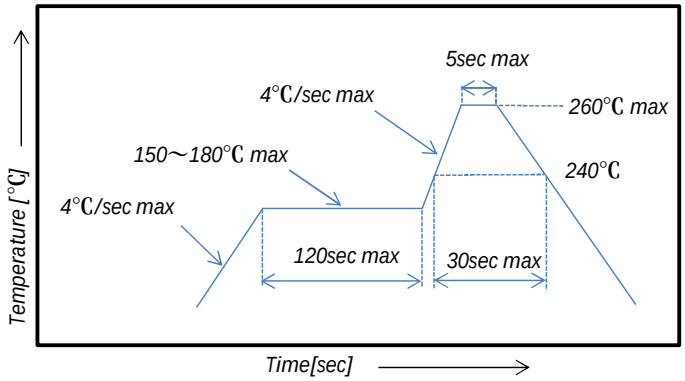




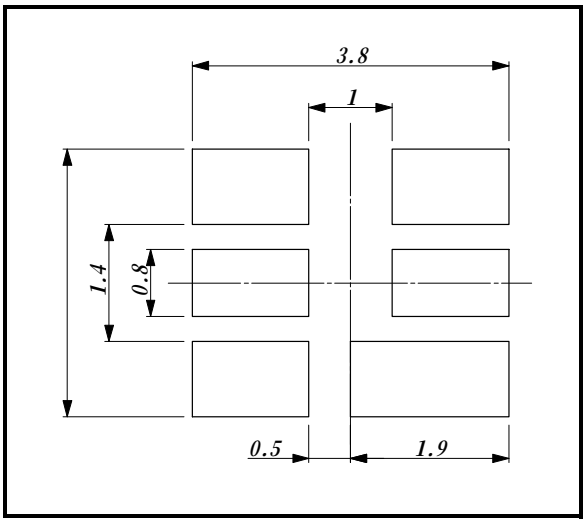
1- Case
2- Anode
3- Case
4- Case
5- Cathode
6- Case

Unit: mm, Tolerance: ±0.2

Reflow Soldering Temperature-Profile [Pb free Soldering] (Recommend condition)



Recommended Soldering Pattern [mm]



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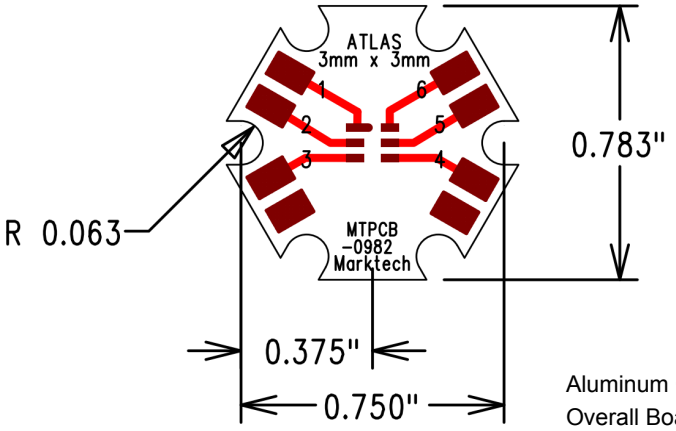
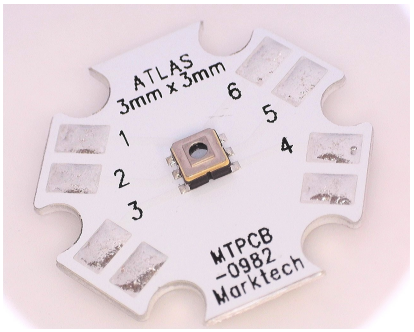
Starboard Dimensions



Pin 1	Case
Pin 2	Anode
Pin 3	Case
Pin 4	Case
Pin 5	Cathode
Pin 6	Case



Aluminum Core Board 0.040" (1.02mm) Thickness
Overall Board Dimensions: +/- 0.010" (0.254mm)

RoHS COMPLIANT

Pb Pb-Free

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

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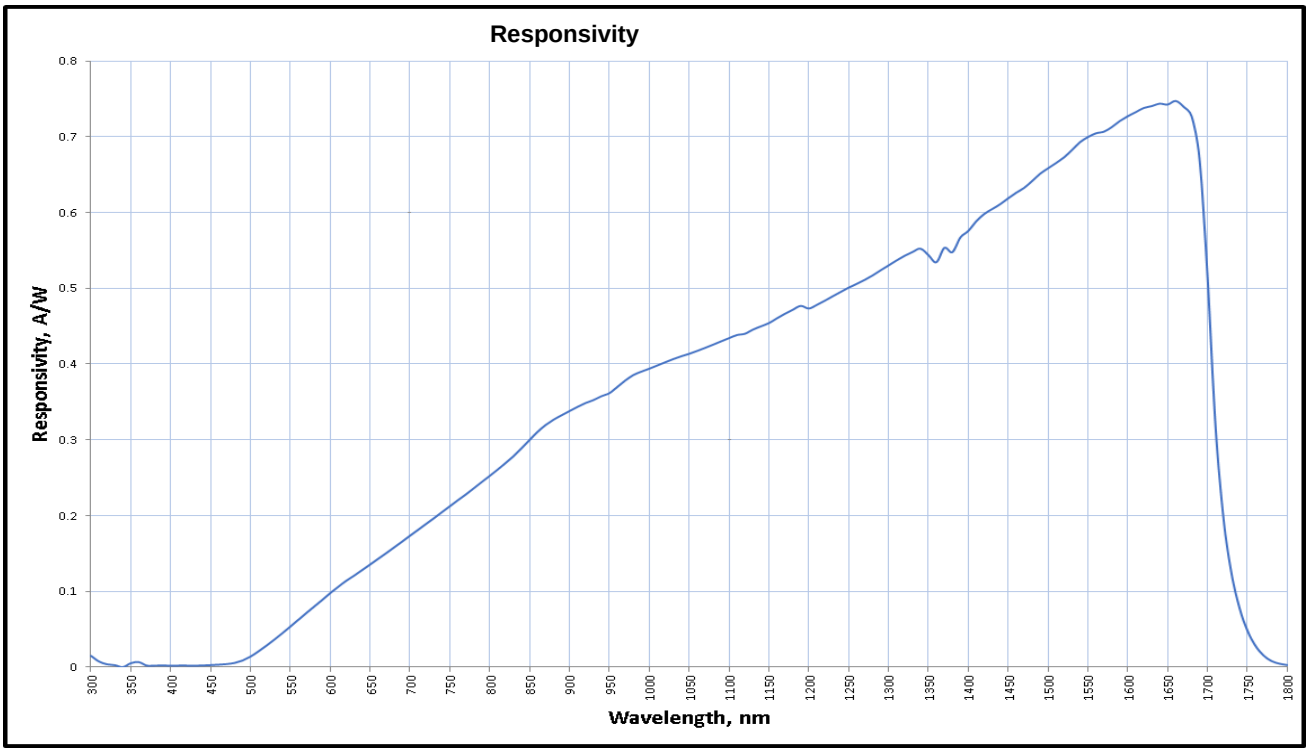

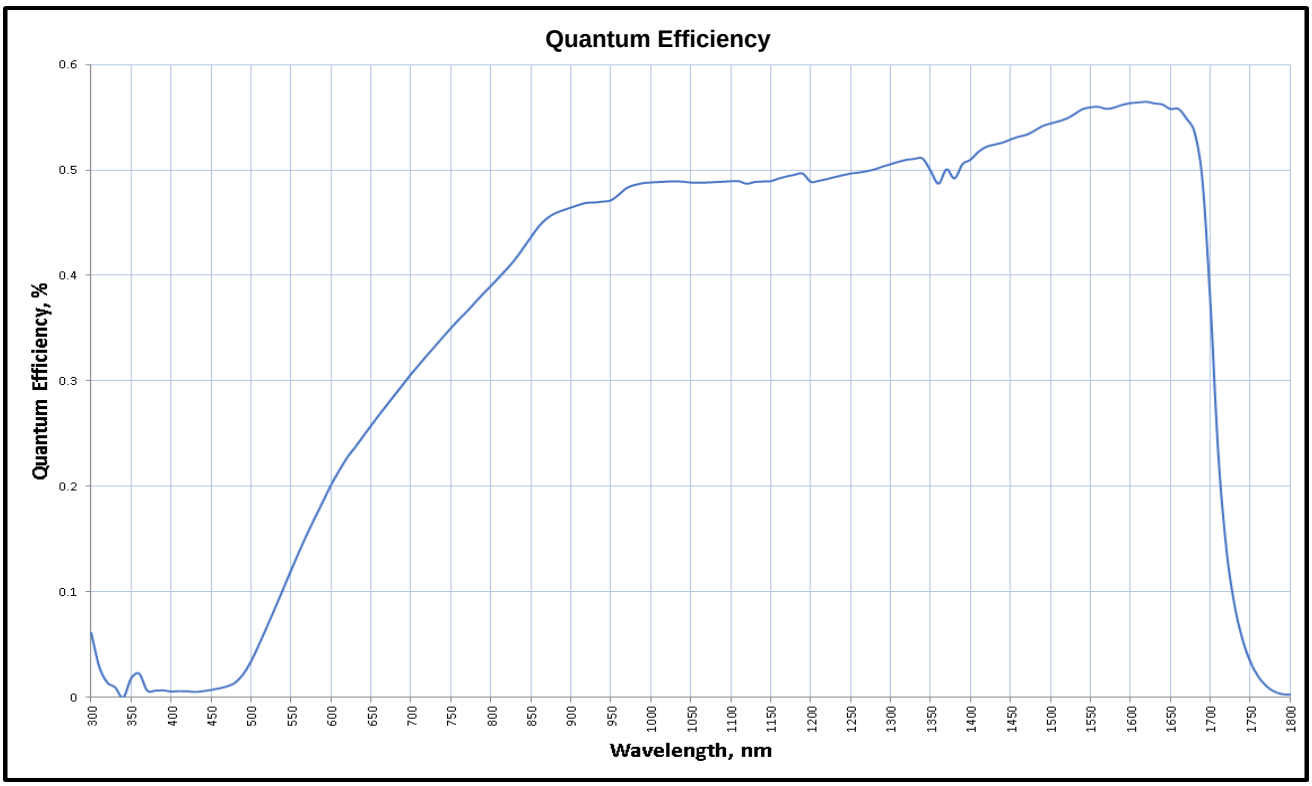

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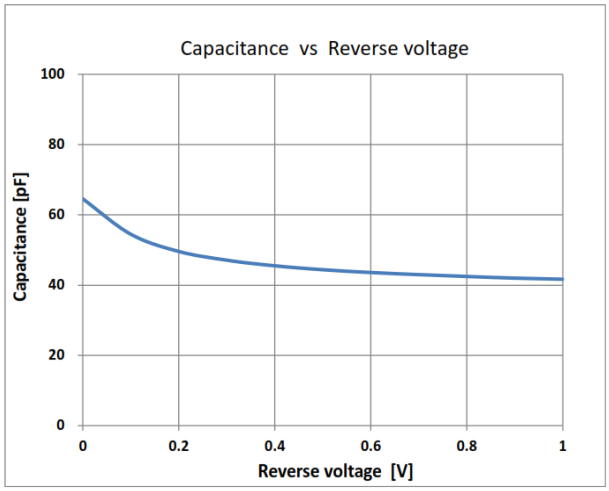
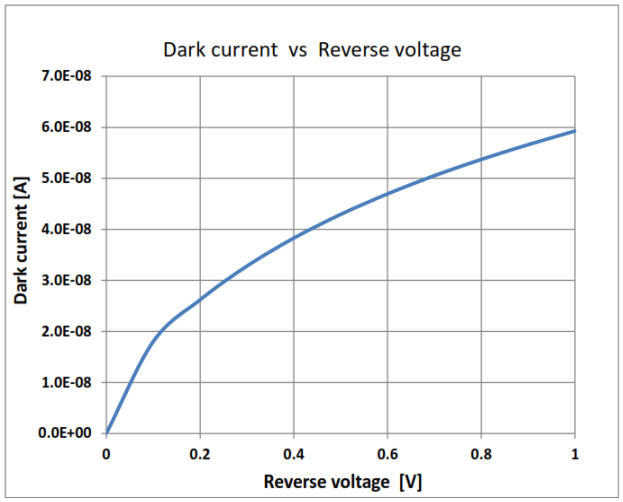
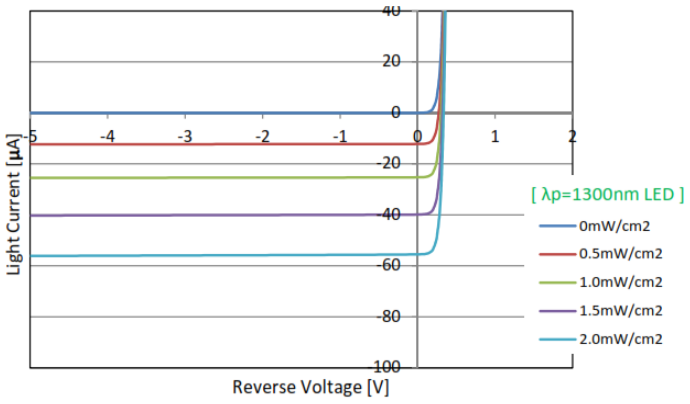

Capacitance vs Reverse voltage
Capacitance [pF]
100
80
60
40
20
0
0
0.2
0.4
0.6
0.8
1
Reverse voltage [V]


Dark current vs Reverse voltage
Dark current [A]
7.0E-08
6.0E-08
5.0E-08
4.0E-08
3.0E-08
2.0E-08
1.0E-08
0.0E+00
0
0.2
0.4
0.6
0.8
1
Reverse voltage [V]


Light Current [μA]
40
20
0
-20
-40
-60
-80
-100
-5
-4
-3
-2
-1
0
1
2
Reverse Voltage [V]
[λp=1300nm LED]
0mW/cm2
0.5mW/cm2
1.0mW/cm2
1.5mW/cm2
2.0mW/cm2

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