



PHOTO DETECTOR FOR DIGITAL VIDEO DISK

PRELIMINARY DATA

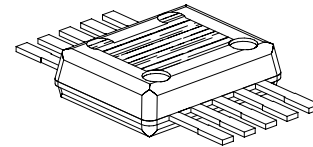
- LARGE BANDWIDTH (30MHz) AND LOW NOISE I/U AMPLIFIER
- SENSITIVITY SWITCHING FOR OPTICAL PICKUPS
- DETECTOR PATTERN ADAPTED FOR EFM SIGNAL DETECTION, FOCUS AND TRACKING CONTROLS

DESCRIPTION

This six diodes photodetector includes six low noise I/V amplifiers with a sensitivity switching for adaptation to different optical pickups and disks.

The detector pattern is adaptable for astigmatism focus method, 3 beams tracking and differential phase detection methods.

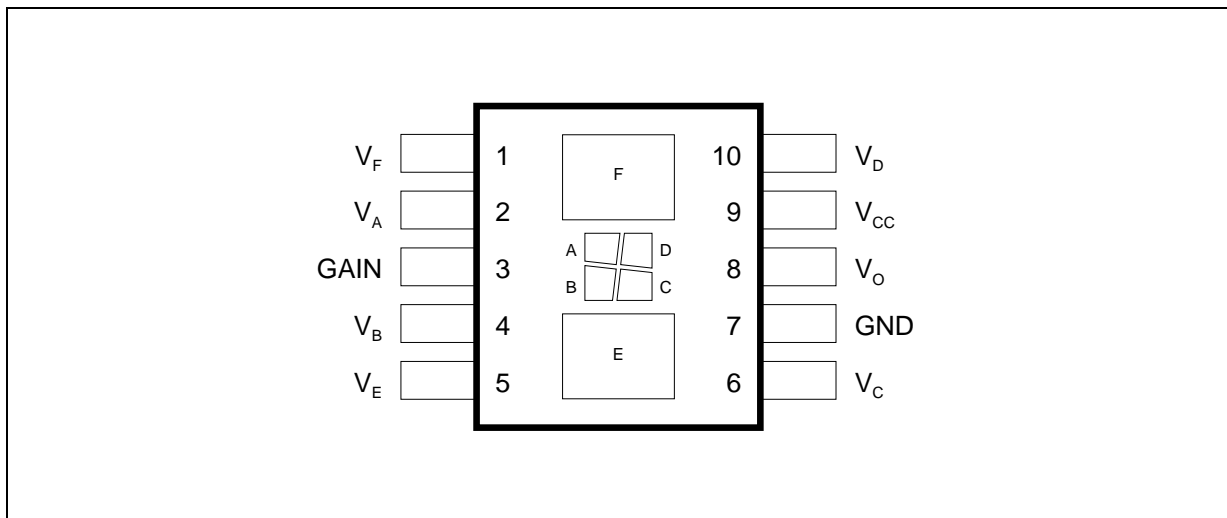
The STV5805 is adapted for pick-up of DVD-ROM and DVD players up to 3 x speed for both 1 layer and 2 layer discs.



OPTOSO10L
(Plastic Transparent Package)

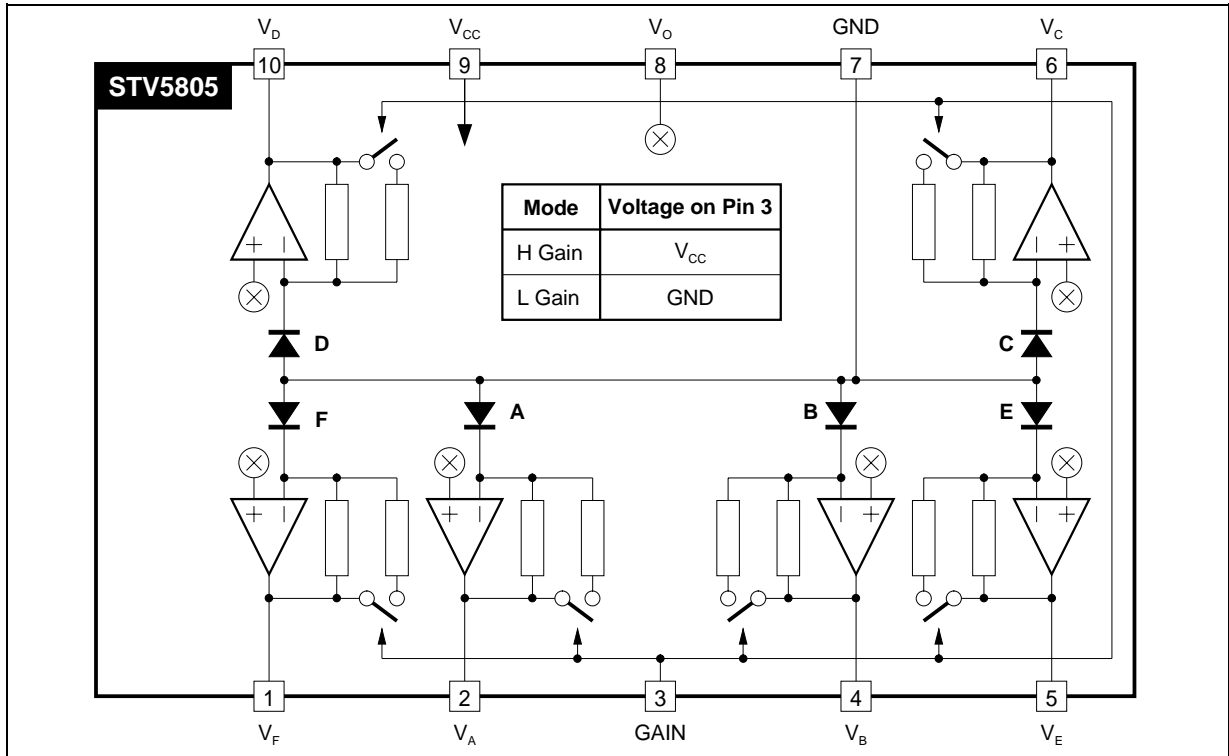
ORDER CODE : STV5805D

PIN CONNECTIONS



5805-01.EPS

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|------------|-----------------------|-----------|-------------|
| V_{CC} | Power Supply Voltage | 6 | V |
| T_j | Junction Temperature | 150 | $^{\circ}C$ |
| T_{oper} | Operating Temperature | - 20, +70 | $^{\circ}C$ |

THERMAL DATA

| Symbol | Parameter | Value | Unit |
|---------------|-------------------------------------|----------|---------------|
| $R_{th(j-a)}$ | Junction-ambient Thermal Resistance | Max. 100 | $^{\circ}C/W$ |

RECOMMENDED OPERATING CHARACTERISTICS

| Symbol | Parameter | Min. | Typ. | Max. | Unit |
|----------|--------------|------|------|------|------|
| V_{CC} | Power Supply | 4.75 | 5 | 5.25 | V |

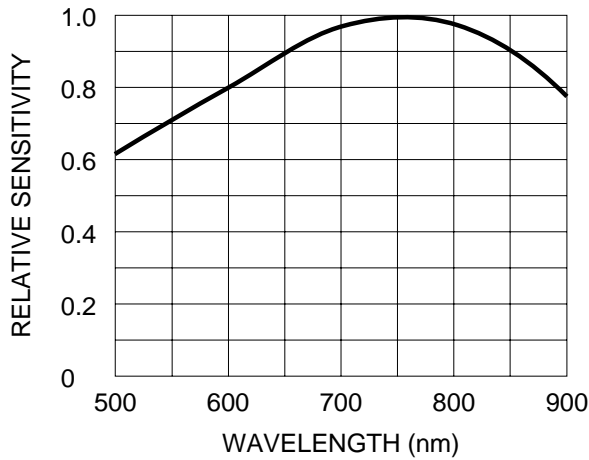
ELECTRICAL CHARACTERISTICS

($V_{CC} = 5V$, $V_O = 2.5V$, Light wavelength = 635 to 680nm, $T_{amb} = 25^{\circ}C$, unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------------------------|--|--|----------|------------|------------|----------------------------|
| I_{CC} | Supply Current | Gain = H or L | | 25 | | mA |
| SADH SADL | Sensitivity A to D | Gain = H Gain = L | 27 9 | 36 12 | 45 15 | mV/ μ W mV/ μ W |
| SEFH SEFL | Sensitivity E, F | Gain = H Gain = L | 45 15 | 60 20 | 75 35 | mV/ μ W mV/ μ W |
| BWAD BWEF | Bandwidth at -3dB (A to D) Bandwidth at -3dB (E, F) | Gain = H or L Gain = H or L | 25 2 | 30 5 | | MHz MHz |
| DV0 | Offset Voltage versus V_O | Gain = H or L, in the dark | -15 | 0 | 15 | mV |
| DVAB | Offset Voltage ($V_A - V_B$) | Gain = H or L, in the dark | -15 | 0 | 15 | mV |
| DVCD | Offset Voltage ($V_C - V_D$) | Gain = H or L, in the dark | -15 | 0 | 15 | mV |
| DVM | Offset Voltage [$(V_A + V_C) - (V_B + V_D)$] | Gain = H or L, in the dark | -15 | 0 | 15 | mV |
| DVEF | Offset Voltage ($V_E - V_F$) | Gain = H or L, in the dark | -15 | 0 | 15 | mV |
| ENADH ENADL | Equivalent Noise Level (A to D) | 10MHz, BW = 30kHz, in the dark Gain = H Gain = L | | -74 -83 | -66 -75 | dBm dBm |
| ENEFH ENEFL | Equivalent Noise Level (E, F) | 10MHz, BW = 30kHz, in the dark Gain = H Gain = L | | -62 -71 | | dBm dBm |
| I_{VO} | Input Current on V_O | $V_O = 2.5V$ | | 0.6 | | mA |
| I_{GAINH} I_{GAINL} | Input Current on Gain | Gain = V_{CC} Gain = GND | | -1 +1 | | μ A μ A |

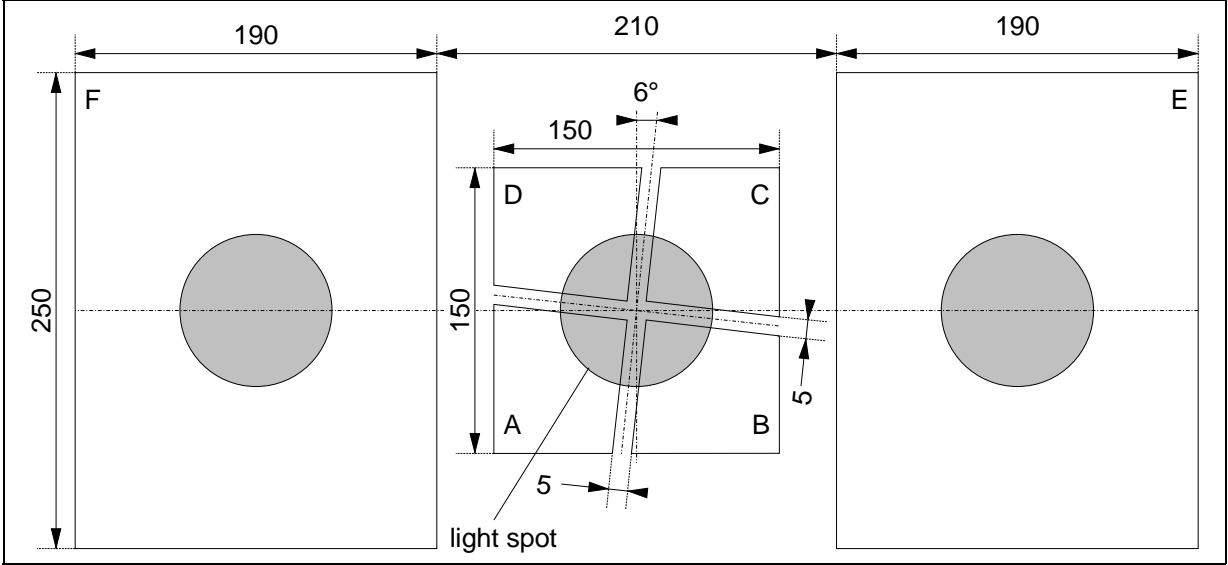
5805-04.TBL

Figure 1 : Typical Spectral Sensitivity



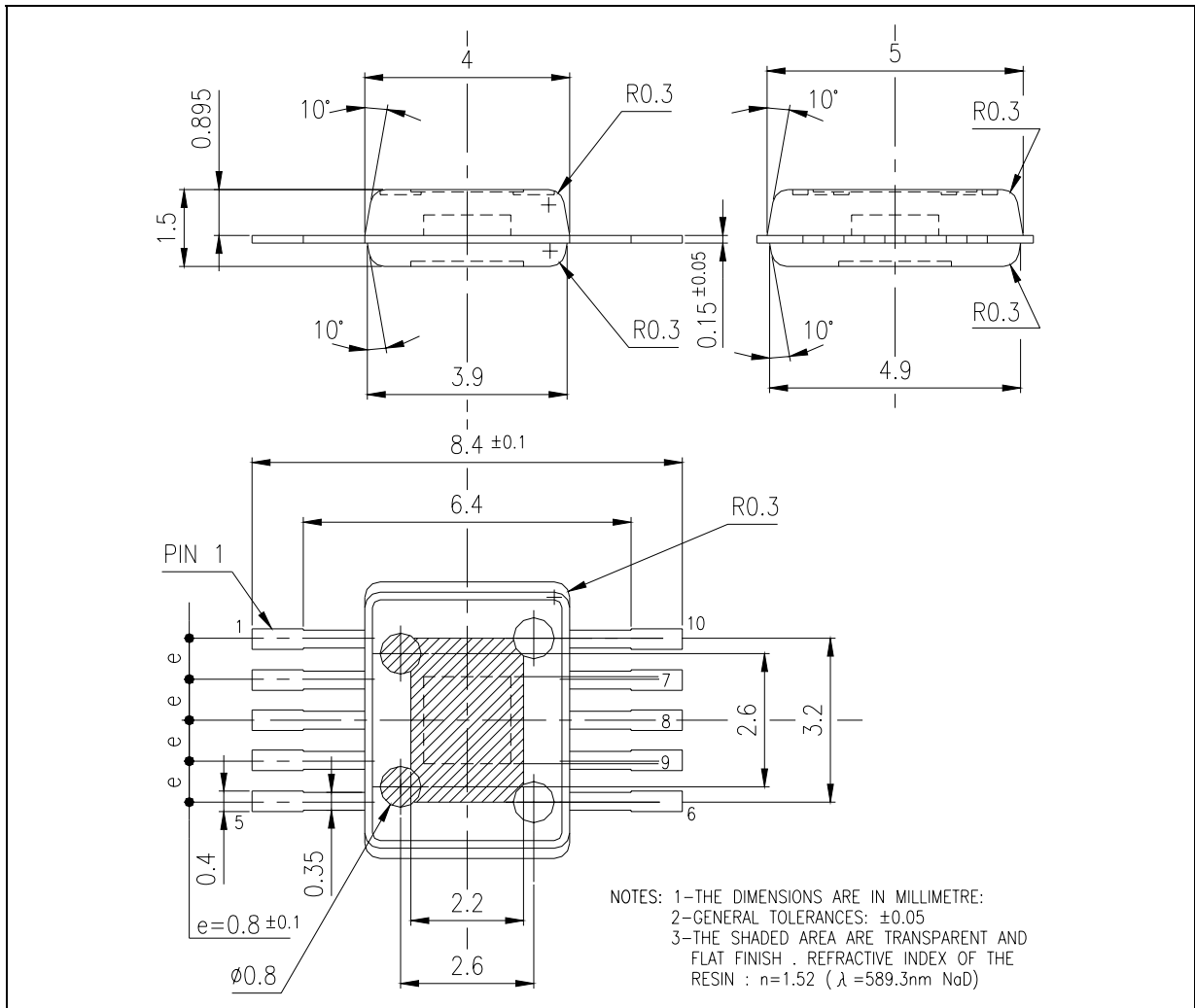
5805-03.EPS

DETECTOR PATTERN DIMENSIONS (Position : Center of Package) (Unit : μm)



5805-04.EPS

PACKAGE MECHANICAL DATA
10 PINS - PLASTIC TRANSPARENT (OPTO)



PMOPTO10.EPS

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