# Cooled - Large Area APDs

## Electro-Optical Characteristics

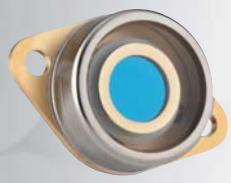
All specifications apply when APD is operated at 0°C and at a gain of 300.

3 mm

| Active Diameter (mm) | Bias Voltage Range† (V) | Temperature Coefficient of Breakdown Voltage (%/°C) | Capacitance f = 100kHz Typ (pF) | Dark Current Typ (nA) | Dark Current Max (nA) | Noise Current Spectral Density f = 100kHz Typ (pA/√Hz) | Noise Current Spectral Density f = 100kHz Max (pA/√Hz) | Rise Time λ = 675nm Load = 50Ω Typ (ns) | Rise Time λ = 675nm Load = 50Ω Max (ns) | TEC Quiescent Current *Th = 35°C (A) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 1700 to 2000 | +0.1 | 15 | 4 | 12 | 0.6 | 1.0 | 8 | 12 | 0.85 |
| 5 | | | 25 | 6 | 18 | 0.8 | 1.5 | 10 | 15 | 0.95 |
| 10 | | | 65 | 15 | 35 | 1.5 | 2.5 | 12 | 18 | 0.68 |
| 16 | | | 140 | 45 | 100 | 3.0 | 4.5 | 15 | 22 | 0.86 |

5 mm

| Part Number | Active Area Dia. (mm) | Spectral Enhancement | Responsivity Typical (A/W) |
|---|---|---|---|
| 118-70-73-591 | 3 | UV | 55 @ 350nm |
| 118-70-74-591 | | Blue | 95 @ 500nm |
| 118-70-72-591 | | Red/IR | 135 @ 750nm |
| 197-70-73-591 | 5 | UV | 55 @ 350nm |
| 197-70-74-591 | | Blue | 95 @ 500nm |
| 197-70-72-591 | | Red/IR | 135 @ 750nm |
| 394-70-73-591 | 10 | UV | 55 @ 350nm |
| 394-70-74-591 | | Blue | 95 @ 500nm |
| 394-70-72-591 | | Red/IR | 135 @ 750nm |
| 630-70-73-571 | 16 | UV | 55@ 350nm |
| 630-70-74-571 | | Blue | 95 @ 500nm |
| 630-70-72-571 | | Red/IR | 135 @ 750nm |



10 mm

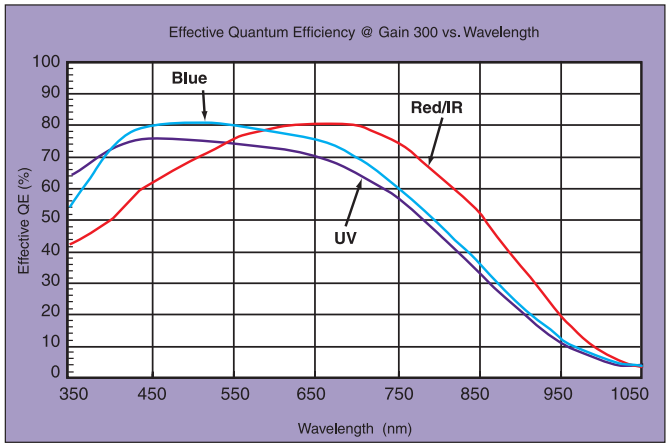
### Absolute Maximum Ratings◊

| | |
|---|---|
| **Gain, M @ λ=675nm** | 350 |
| **Operating Temp Range** (°C) | +1 to +40 |
| **Storage Temp Range** (°C) | -55 to +70 |
| **TEC Voltage** (V) @23°C (W) | 3 & 5 mm - 1.5<br>10 & 16 mm - 4.3 |
| **TEC Current** (A) | 2.0 |
| **APD Die Power Dissipation** (W) | 3 & 5 mm - 0.2<br>10 & 16 mm - 0.5 |

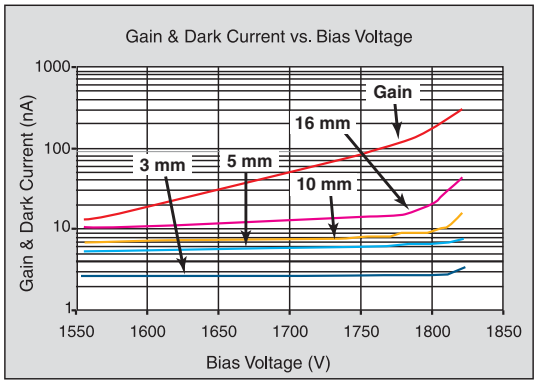
† Positive high voltage (HV) is applied to the cathode contact. The maximum value for the operating HV is specified with each device.
* This is the temperature at the backside of the Cooled APD package.
◊ Operating beyond these limits may cause permanent damage to the device.

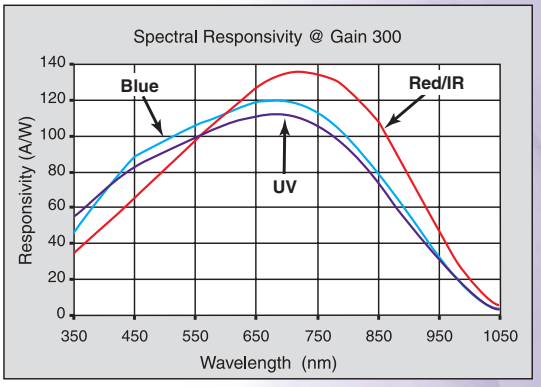
571 has a thermistor with a resistance of 7650 ohms ±12% at 0°C and a negative temperature coefficient.
591 has a LM335 temperature sensing IC. Devices must be operated with a sufficient heat sink.
Consult the factory for UV enhanced operation at wavelengths shorter than 350nm.

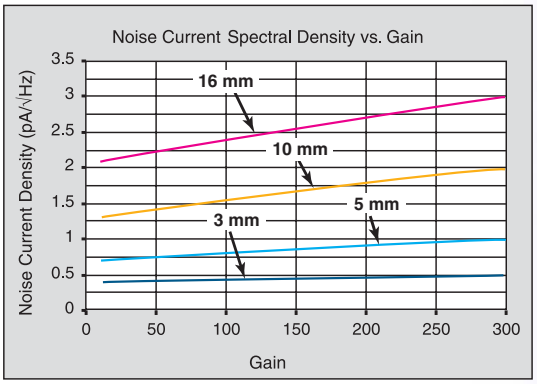
16 mm



# Typical Performance Graphs




## Mechanical Dimensions