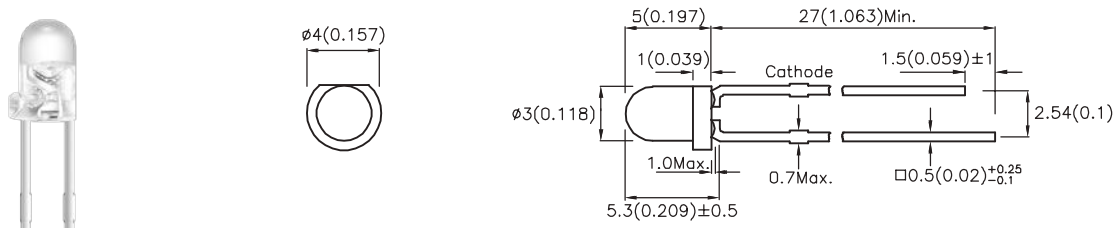


Part Number	Chip Structure	λ_{peak} (nm)	Po(mW/sr) $I_f=20mA, 50mA^*$		Viewing Angle $2\theta_{1/2}$	Lens
			Min.	Typ.		

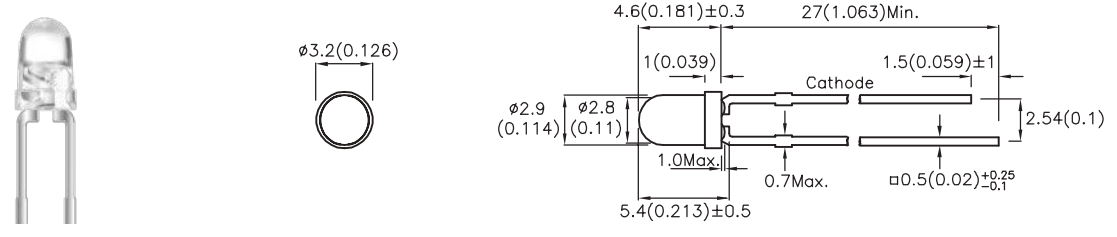
3mm



Dimensions: $\phi 4(0.157)$, $\phi 3(0.118)$, $5(0.197)$, $1(0.039)$, $27(1.063)Min.$, $1.5(0.059) \pm 1$, $1.0Max.$, $0.7Max.$, $2.54(0.1)$, $5.3(0.209) \pm 0.5$, $\square 0.5(0.02)_{-0.1}^{+0.25}$

TNI30W	GaAs	940	3 *8	7 *14	50°	Water Clear
THI30W	GaAlAs	880	3 *5	15 *19	50°	Water Clear

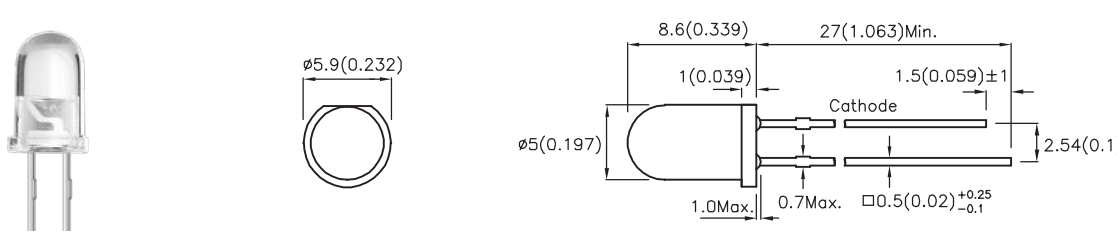
3mm



Dimensions: $\phi 3.2(0.126)$, $\phi 2.9(0.114)$, $\phi 2.8(0.11)$, $4.6(0.181) \pm 0.3$, $1(0.039)$, $27(1.063)Min.$, $1.5(0.059) \pm 1$, $1.0Max.$, $0.7Max.$, $2.54(0.1)$, $5.4(0.213) \pm 0.5$, $\square 0.5(0.02)_{-0.1}^{+0.25}$

TNI11W	GaAs	940	3 *12	7 *24	30°	Water Clear
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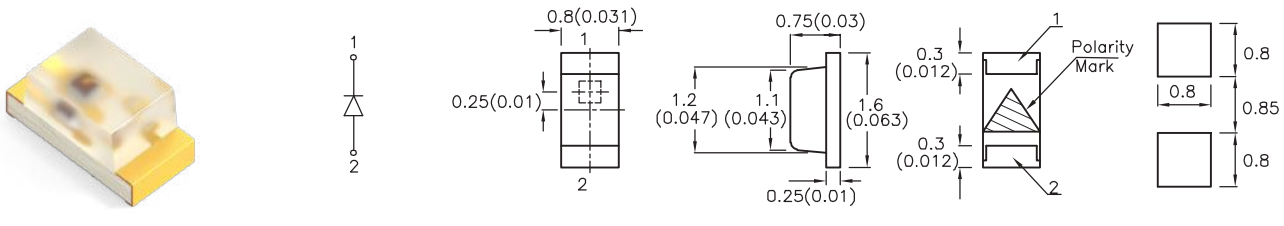
5mm



Dimensions: $\phi 5.9(0.232)$, $\phi 5(0.197)$, $8.6(0.339)$, $1(0.039)$, $27(1.063)Min.$, $1.5(0.059) \pm 1$, $1.0Max.$, $0.7Max.$, $2.54(0.1)$, $\square 0.5(0.02)_{-0.1}^{+0.25}$

TNI12W	GaAs	940	8 *25	19 *49	20°	Water Clear
TNI12BF	GaAs	940	8 *25	19 *49	20°	Blue Transparent
THI12W	GaAlAs	880	6 *12	14 *24	20°	Water Clear
THI12W850	GaAlAs	850	12 *40	29 *89	20°	Water Clear

1.6x0.8x0.75mm (0603)


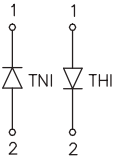
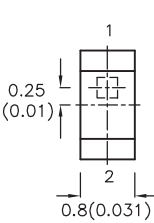
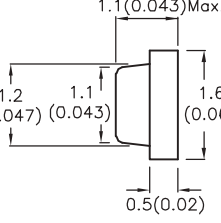
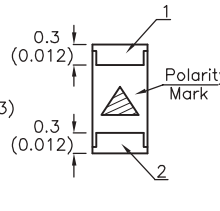
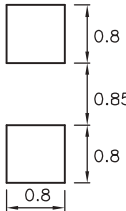
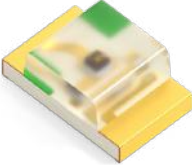

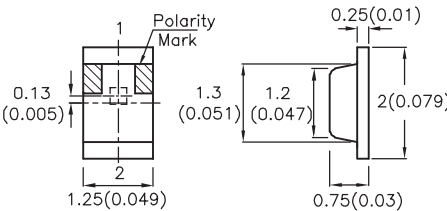
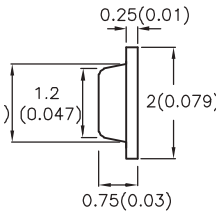
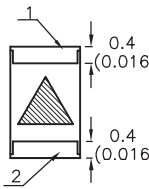

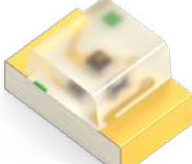
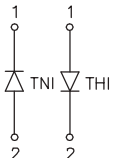
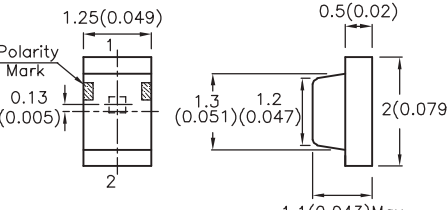
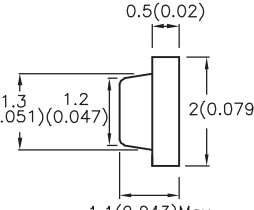
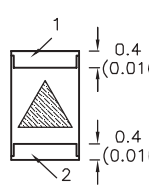
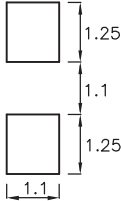
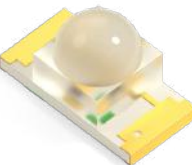

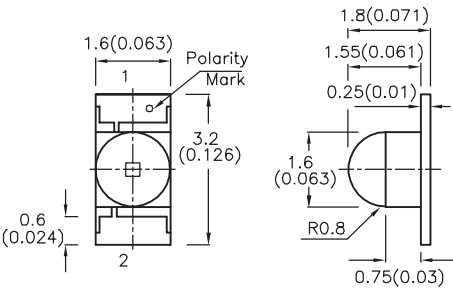
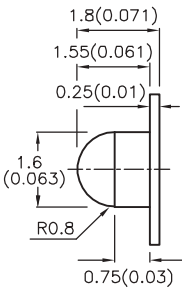
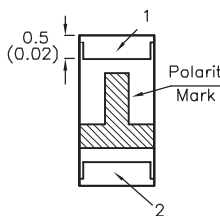
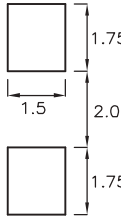


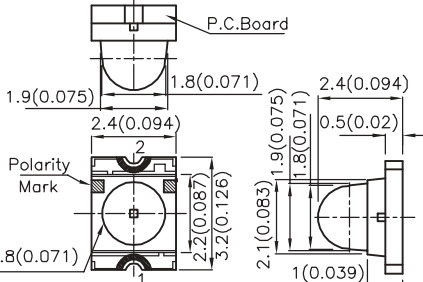
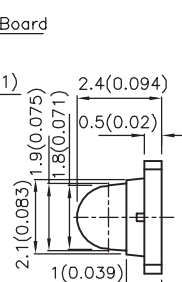
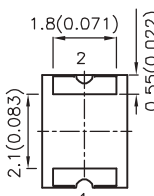
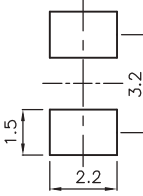


Dimensions: $0.8(0.031)$, $0.25(0.01)$, $0.75(0.03)$, $1.2(0.047)$, $1.1(0.043)$, $1.6(0.063)$, $0.3(0.012)$, $0.3(0.012)$, $0.25(0.01)$


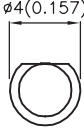
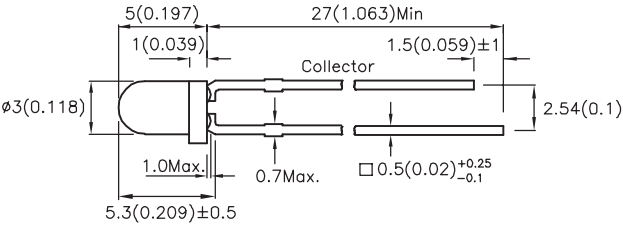


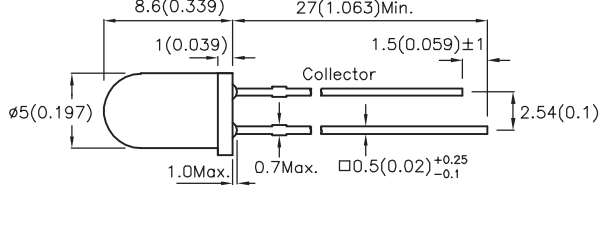
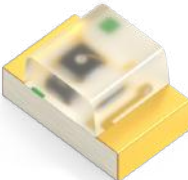
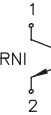
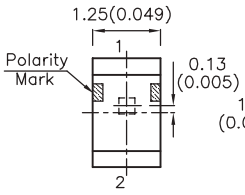
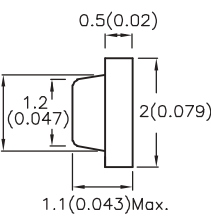
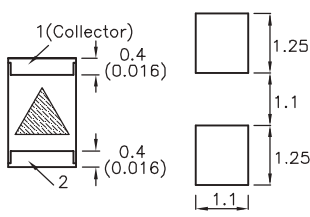
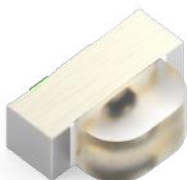

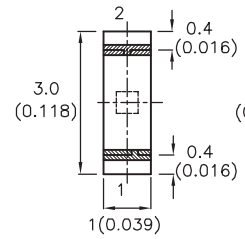
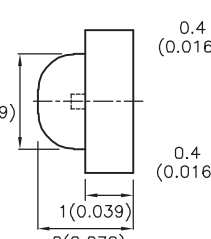
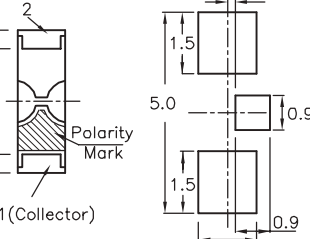
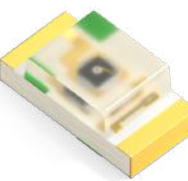
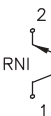
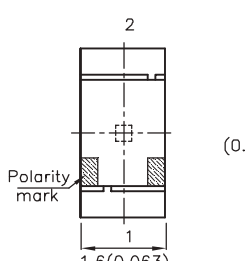
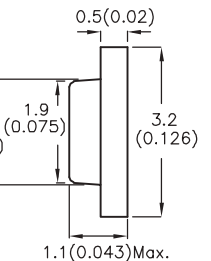
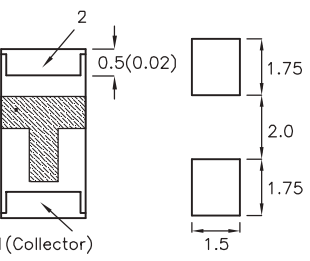
Dimension Unit: mm(inches), Tolerance: $\pm 0.1(0.004)$
Recommended Soldering Pattern

ZTNI53W-1	GaAs	940	0.8	1.8	150°	Water Clear
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1. Dimension Unit: mm(inches), Tolerance: $\pm 0.25mm(0.01)$. Soldering Pattern Tolerance: $\pm 0.1mm$.
2. Radiant intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and / or performance of the product.

Part Number	Chip Structure	λ_{peak} (nm)	Po(mW/sr) $I_f=20mA$		Viewing Angle 2 θ 1/2	Lens
			Min.	Typ.		
1.6x0.8x1.1mm (0603)						
						
Dimension Unit: mm(inches), Tolerance : $\pm 0.1(0.004)$ Recommended Soldering Pattern						
ZTNI53W	GaAs	940	0.8	1.8	150°	Water Clear
ZTHI53W	GaAlAs	880	0.8	1.3	150°	Water Clear
2.0x1.25x0.75mm (0805)						
						
Dimension Unit: mm(inches), Tolerance : $\pm 0.1(0.004)$ Recommended Soldering Pattern						
ZTNI54W-1	GaAs	940	0.8	1.8	160°	Water Clear
2.0x1.25x1.1mm (0805)						
						
Dimension Unit: mm(inches), Tolerance : $\pm 0.1(0.004)$ Recommended Soldering Pattern						
ZTNI54W	GaAs	940	0.8	1.8	160°	Water Clear
ZTHI54W	GaAlAs	880	0.8	1.3	160°	Water Clear
3.2x1.6x1.8mm (1206 Dome Lens)						
						
Dimension Unit: mm(inches), Tolerance : $\pm 0.2(0.008)$ Recommended Soldering Pattern						
ZTNI55W-3	GaAs	940	2	4.8	40°	Water Clear
3.2x2.4x2.4mm (Dome Lens)						
						
Dimension Unit: mm(inches), Tolerance : $\pm 0.1(0.004)$ Recommended Soldering Pattern						
ZTHI78W	GaAlAs	880	3	5	20°	Water Clear

1. Soldering Pattern Dimension Unit : mm , Tolerance : $\pm 0.1mm$.
 2. Radiant intensity value and wavelength are in accordance with CIE127-2007 standards.
 3. We reserve the right to make changes at any time to enhance the design and / or performance of the product.

Part Number	Lens	Description
<p>3mm</p>   	<p>Water Clear</p>	<p>3mm</p>
<p>5mm</p>   	<p>Water Clear</p>	<p>5mm</p>
<p>2.0x1.25x1.1mm (0805)</p>     	<p>Water Clear</p>	<p>2.0x1.25x1.1mm</p>
<p>3.0x2.0x1.0mm (Right Angle)</p>     	<p>Water Clear Blue transparent</p>	<p>3.0x2.0x1.0mm 3.0x2.0x1.0mm</p>
<p>3.2x1.6x1.1mm (1206)</p>     	<p>Water Clear</p>	<p>3.2x1.6x1.1mm</p>

1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01"). Soldering Pattern Tolerance: ±0.1mm.
 2. We reserve the right to make changes at any time to enhance the design and / or performance of the product.

Electrical & Radiant Characteristics $T_a = 25^\circ\text{C}$

Symbol	Parameter	Part Number	Min.	Typ.	Max.	Unit	Test Condition
$I_{(ON)}$	On State Collector Current	RNI30W-1	0.3	0.8	-	mA	$V_{CE}=5V, E_e=1mW/cm^2, \lambda=940nm$
		RNI12W	0.5	2.5			
		ZRNI54W	0.2	0.4			
		ZRNI56W	0.2	0.4			
		ZRNI56BF	0.1	0.3			
		ZRNI55W	0.2	0.4			
$V_{BR(CEO)}$	Collector-to-Emitter Breakdown Voltage	-	30	-	-	V	$I_c=100\mu A, E_e=0mW/cm^2$
$V_{BR(ECO)}$	Emitter-to-Collector Breakdown Voltage	-	5	-	-	V	$I_e=100\mu A, E_e=0mW/cm^2$
$V_{CE(SAT)}$	Collector-to-Emitter Saturation Voltage	-	-	-	0.8	V	$I_c=2mA, E_e=20mW/cm^2$
I_{CEO}	Collector Dark Current	-	-	-	100	nA	$V_{CE}=10V, E_e=0mW/cm^2$
T_R	Rise Time (10% to 90%)	-	-	15	-	μs	$V_{CE}=5V, I_c=1mA, R_L=1K\Omega$
T_F	Fall Time (90% to 10%)	-	-	15	-	μs	$V_{CE}=5V, I_c=1mA, R_L=1K\Omega$

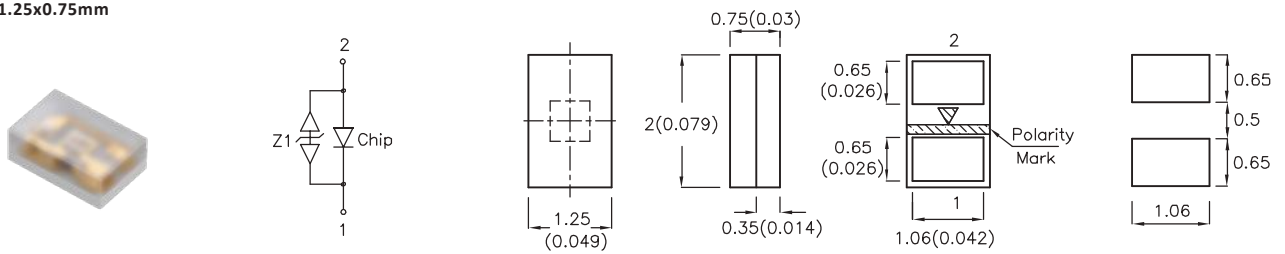
Absolute Maximum Rating $T_a = 25^\circ\text{C}$

Collector-to-Emitter Voltage	30V	Operating Temperature Range	$-40^\circ\text{C} \sim +85^\circ\text{C}$
Emitter-to-Collector Voltage	5V	Storage Temperature Range	$-40^\circ\text{C} \sim +85^\circ\text{C}$
Power Dissipation at (or below) 25°C Free Air Temperature	100mW	Lead Soldering Temperature(>5mm For 5sec)	260°C

ULTRAVIOLET

Part Number	Chip Structure (Emitted Color)	λ_{peak} (nm)	Pd(W)	Φ_e (mW) @20mA	Viewing Angle $2\theta_{1/2}$	Lens
				Typ.		

2.0x1.25x0.75mm



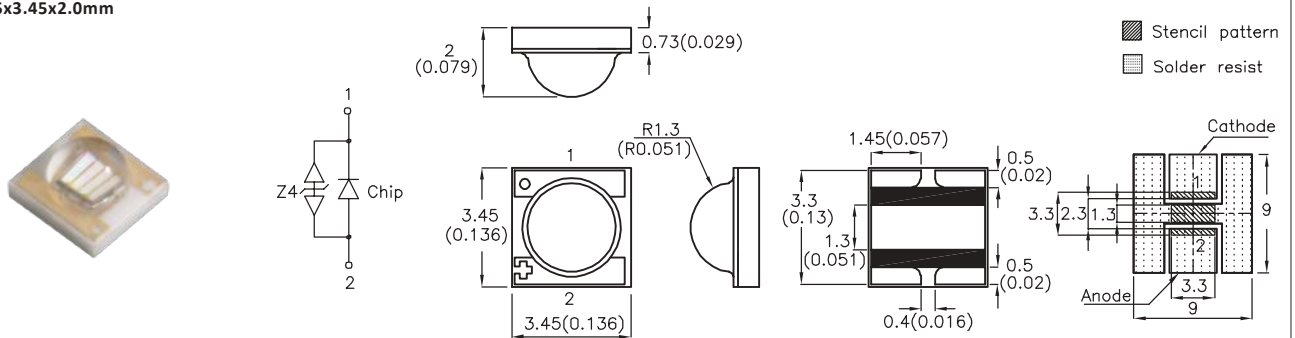
Dimension Unit: mm(inches), Tolerance: $\pm 0.25mm$ (0.01")

Recommended Soldering Pattern

ZVS54S-9A	InGaN (Ultraviolet)	365	0.12	12	150°	Water Clear
ZVS54S-9C	InGaN (Ultraviolet)	385	0.12	15	150°	Water Clear
ZVS54S-9D	InGaN (Ultraviolet)	395	0.12	15	150°	Water Clear
ZVS54S-9F	InGaN (Ultraviolet)	415	0.12	17	150°	Water Clear

Part Number	Chip Structure (Emitted Color)	λ_{peak} (nm)	Pd(W)	Φ_e (mW) @500mA	Viewing Angle $2\theta_{1/2}$	Lens
				Typ.		

3.45x3.45x2.0mm



Dimension Unit: mm(inches), Tolerance: $\pm 0.2(0.008)$ "

Recommended Soldering Pattern

ZVS160S-A	InGaN (Ultraviolet)	365	1.95	617	120°	Water Clear
ZVS160S-D	InGaN (Ultraviolet)	395	2.8	795	120°	Water Clear
ZVS160S-E	InGaN (Ultraviolet)	405	2.8	795	120°	Water Clear

1. Soldering Pattern Dimension Unit : mm , Tolerance : $\pm 0.1mm$.
 2. Radiant flux value and wavelength are in accordance with CIE127-2007 standards.
 3. We reserve the right to make changes at any time to enhance the design and / or performance of the product.