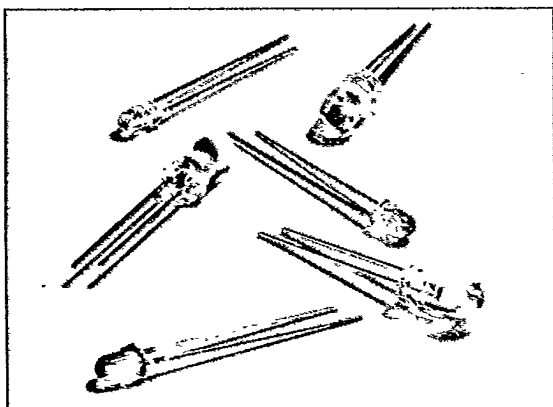


AND**LED Lamps STRIKING BRIGHT****FEATURES**

- Striking Bright
- High brightness for outdoor applications
- Low drive current
- Solid state reliability, long life
- Excellent ON-OFF contrast ratio
- Fast response time, capable of pulse operation
- Choice of 2 colors
 - GaAlAs-red
 - GaP-green

**AND185, 187, 190, and 191 Series – 8 mm / 10 mm Package Striking Bright**

Part Number	Color		Lens Description	Axial Luminous Intensity (mcd)		Test Condition (I _F -mA)	Viewing Angle 2θ _{1/2} (deg)
	Led	Lens		Min.	Typ.		
AND190GCP	Green	Clear	Clear	560	2000	20	4
AND191GCP	Green	Milky	Diffused	56	200	20	16
AND185GCP	Green	Clear	Clear	180	500	20	15
AND187GCP	Green	Clear	Clear	56	200	20	24

AND180, 135, 134, and 114 Series – T1 1/4 Package Striking Bright

Part Number	Color		Lens Description	Axial Luminous Intensity (mcd)		Test Condition (I _F -mA)	Viewing Angle 2θ _{1/2} (deg)
	Led	Lens		Min.	Typ.		
AND180QRP	Red	Clear	Clear	320	720	20	15
AND135NR	Red	Clear	Clear	100	230	20	25
AND134MR	Red	Red	Diffused	56	128	20	30
AND114KR	Red	Red	Diffused	18	41	20	80
AND180PGP	Green	Clear	Clear	180	410	20	15
AND135NGP	Green	Clear	Clear	100	230	20	25

AND163, 124, 160 & 125 Series – T1 Package Striking Bright

Part Number	Color		Lens Description	Axial Luminous Intensity (mcd)		Test Condition (I _F -mA)	Viewing Angle 2θ _{1/2} (deg)
	Led	Lens		Min.	Typ.		
AND163QR	Red	LT Red	Clear	320	720	20	10
AND160RC	Red	Clear	Clear	100	200	20	10
AND125RC	Red	Clear	Clear	25	50	20	60
AND124KR	Red	Red	Diffused	18	41	20	70
AND160NG	Green	Clear	Clear	100	230	20	10

Absolute Maximum Ratings (T_A = 25°C)

Characteristics	Symbol	Rating		Unit
		Red	Green	
Forward Current (DC)	I _F	25	40	mA
Reverse Voltage	V _R	4	4	V
Power Dissipation	P _D	55	120	mW
Operating Temperature Range	T _{OPR}	- 20 to + 75		°C
Storage Temperature Range	T _{STC}	- 30 to + 100		°C

AND

LED Lamps STRIKING BRIGHT

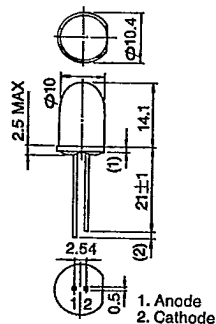
T-41-21

Electro-Optical Characteristics ($T_A = 25^\circ\text{C}$)

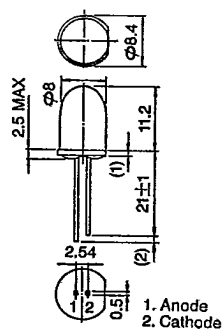
Characteristics	Symbol	Test Condition	Red			Green			Units
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Forward Voltage	V_F	$I_F = 20\text{mA}$		1.75	2.2		2.1	2.8	V
Reverse Current	I_R	$V_R = 4\text{V}$			100			5	μA
Peak Emission Wavelength	λ_P	$I_F = 15\text{mA}$		660			565		nm
Spectral Line Half Width	$\Delta\lambda$	$I_F = 15\text{mA}$		25			25		nm

1

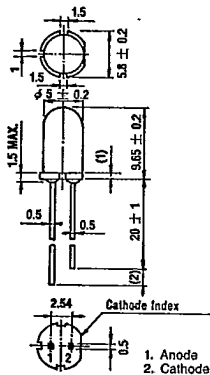
AND190/191



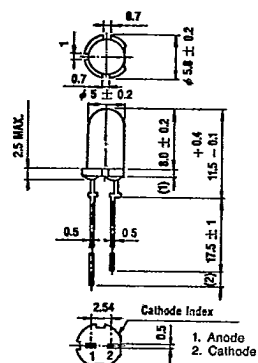
AND185/187



AND180QRP/AND180PGP



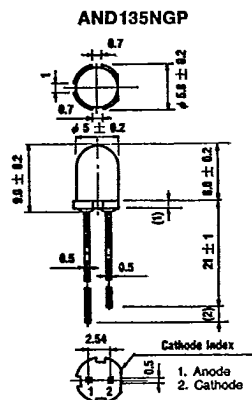
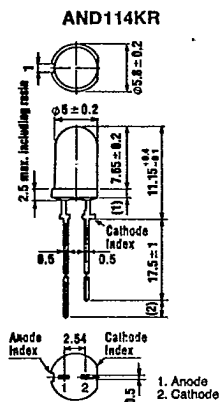
AND135NR/AND134MR



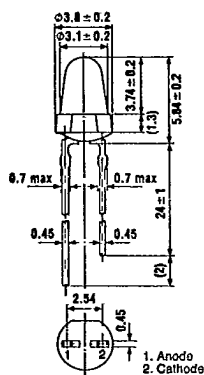


LED Lamps STRIKING BRIGHT

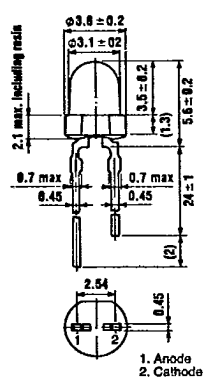
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AND163QR/AND160NG/AND160RC

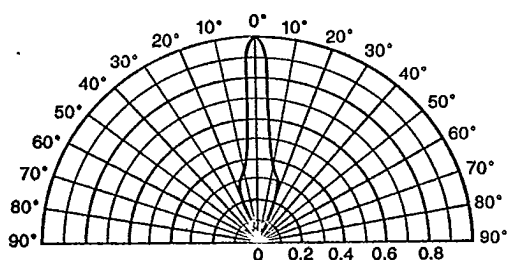


AND124KR/AND125RC

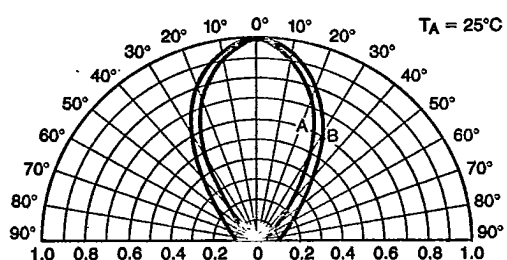


Radiation Pattern

AND163QR/AND160RC/AND160NG



AND124KR/AND125RC



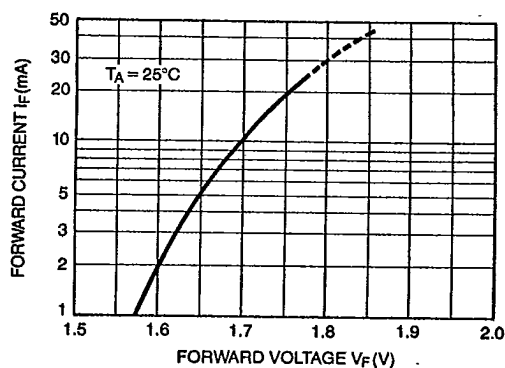
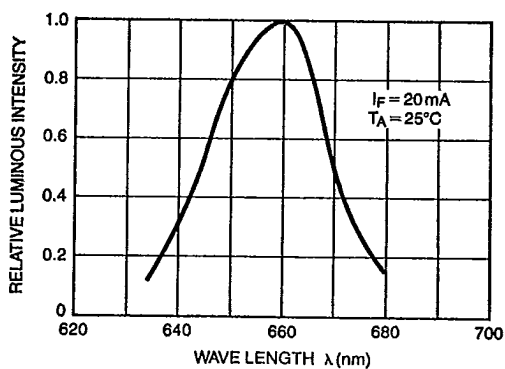
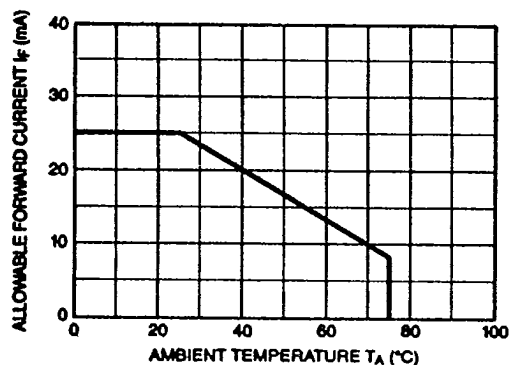


LED Lamps STRIKING BRIGHT

T-41-21

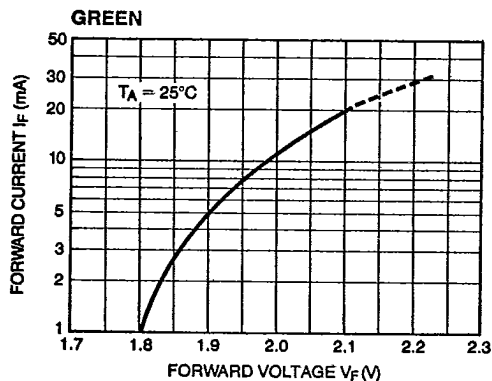
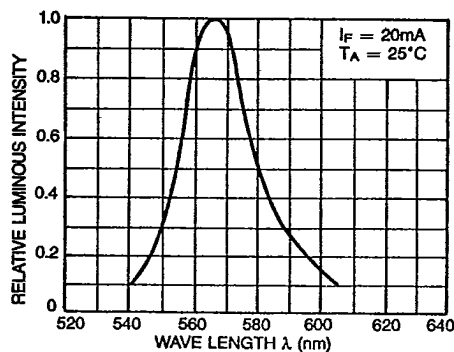
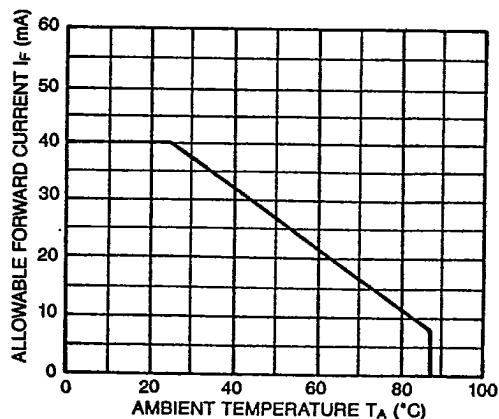
Red

$I_F - T_A$



Green

$I_F - T_A$



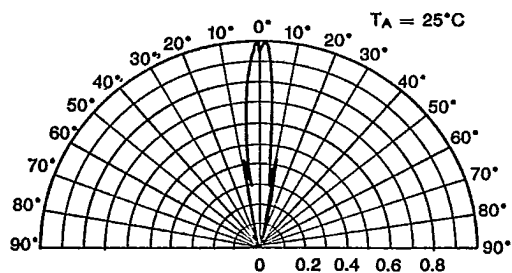


LED Lamps STRIKING BRIGHT

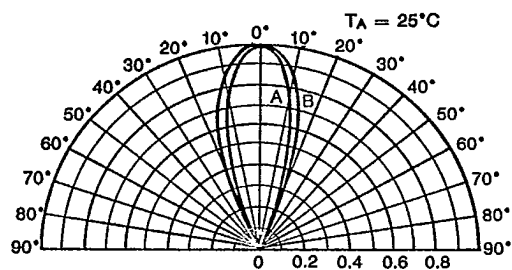
T-41-21

Radiation Pattern

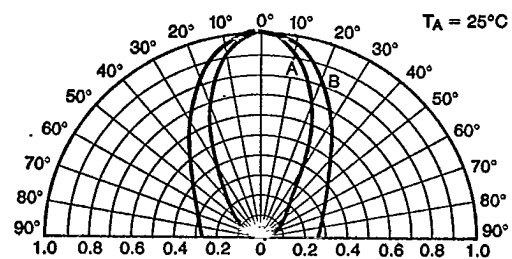
AND180QRP/AND180PGP



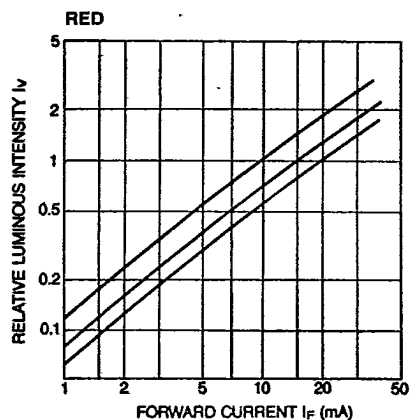
A: AND135NR/AND135NGP
B: AND134MR



B: AND114KR



$I_v - I_F$



(This graph shows relative luminous intensity vs. forward current. At three points ($I_F = 10, 15, 20\text{mA}$) each relation is normalized.)

