IRP3216N18-D0

SMD Type 940nm Infrared Emitter

Features

- Small double-end package
- Viewing Angle = $\pm 15^0$
- High radiant intensity
- High reliability
- Good spectral matching to Si photo detector
- RoHS compliance

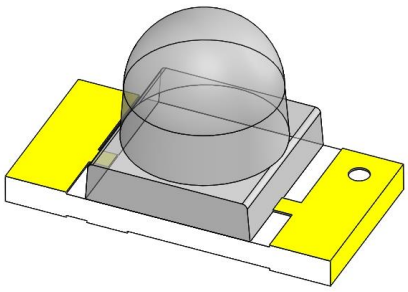
Description

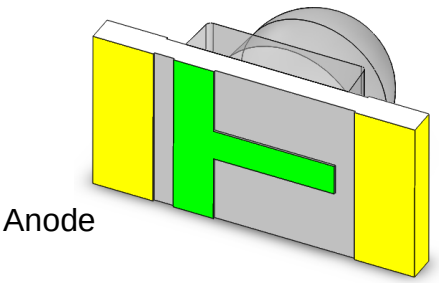
The IRP3216N18-D0 is a GaAlAs infrared LED housed in a miniature SMD package. The device has a peak wavelength of 940nm LED spectrally matched with phototransistor or photodiode.

Applications

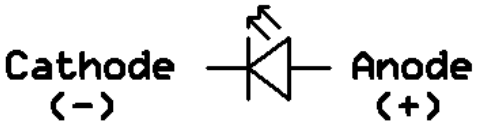
- Infrared sensor

Package Outline





Schematic



Absolute Maximum Rating at 25^{0}C

Symbol	*Parameters*	*Ratings*	*Units*	*Notes*
I_F	Continuous Forward Current	70	mA	
I_{FP}	Peak Forward Current	0.7	A	1
V_R	Reverse Voltage	5	V	
T_{opr}	Operating Temperature	-40 ~ +85	^{0}C	
T_{stg}	Storage Temperature	-40 ~ +100	^{0}C	
T_{sol}	Soldering Temperature	260	^{0}C	2
P_D	Power Dissipation at(or below) 25℃Free Air Temperature	140	mW	
R_{THJA}	Junction to Ambient Thermal Resistance	540	^{0}C/W	

Electro-Optical Characteristics *TA = 25°C (unless otherwise specified)*

Optical Characteristics

Symbol	*Parameters*	*Test Conditions*	*Min*	*Typ*	*Max*	*Units*	*Notes*
Ie	Radiant Intensity	I_F=20mA	3.0	5.2	13	mW/sr	3
		I_F =70mA	-	18	-		
λp	Peak Wavelength	I_F=20mA	-	940	-	nm	
Δλ	Spectral Bandwidth	I_F=20mA	-	50	-	nm	
θ1/2	Angle of Half Intensity	I_F=20mA	-	±15	-	deg	

Electrical Characteristics

Symbol	*Parameters*	*Test Conditions*	*Min*	*Typ*	*Max*	*Units*	*Notes*
V_F	Forward Voltage	I_F=20mA	1.1	1.20	1.35	V	
		I_F=70mA	1.2	1.34	1.54		
I_R	Reverse Current	V_R=5V	-	-	10	μA	

Notes:

1 : I_{FP} Conditions--Pulse Width≦ 100μs and Duty≦ 1%.

2 : Soldering time≦5 seconds.

3 : Ie Bin Rank :

Bin Code	Fb	G	H
Min	3.0	4.0	6.5
Max	5.0	8.0	13

Typical Characteristic Curves

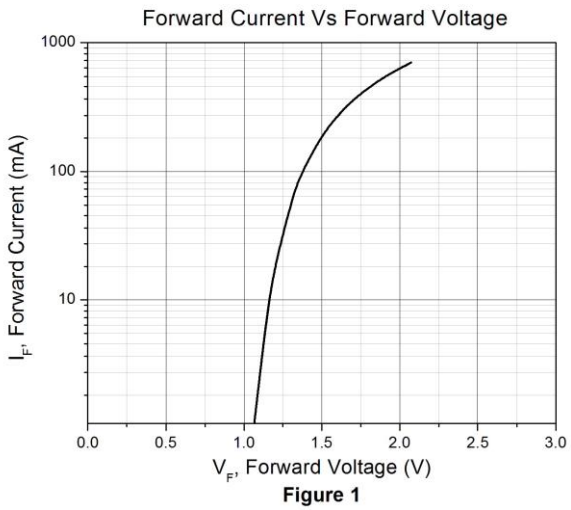


Figure 1

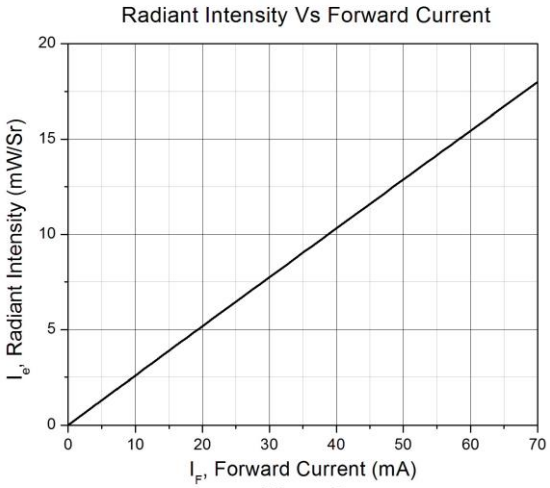


Figure 2

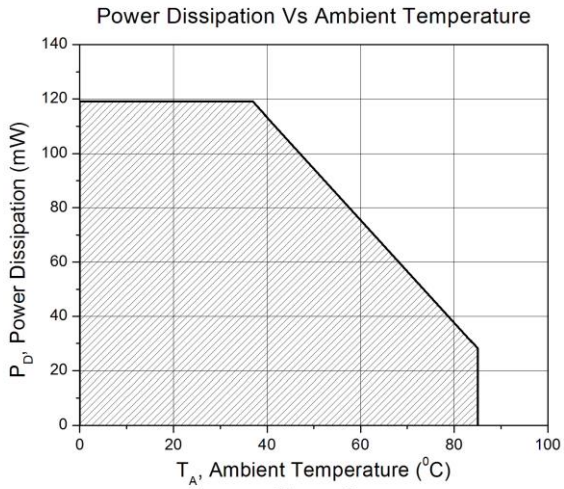


Figure 3

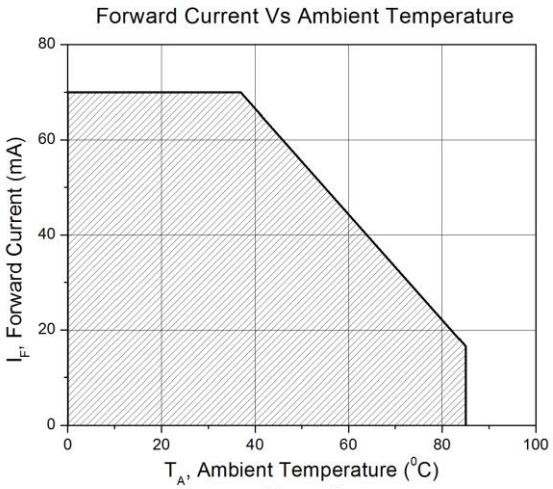


Figure 4

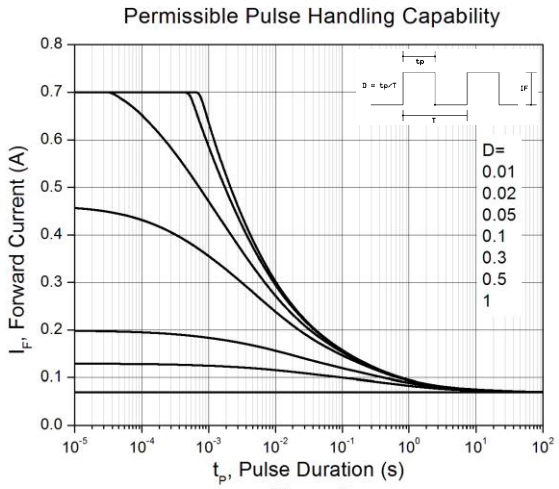


Figure 5

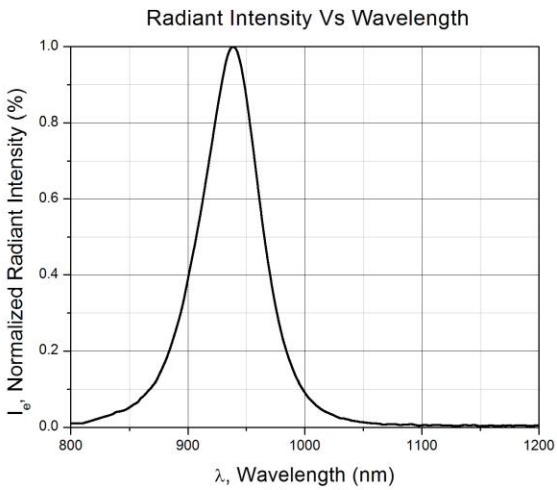


Figure 6

Typical Characteristic Curves

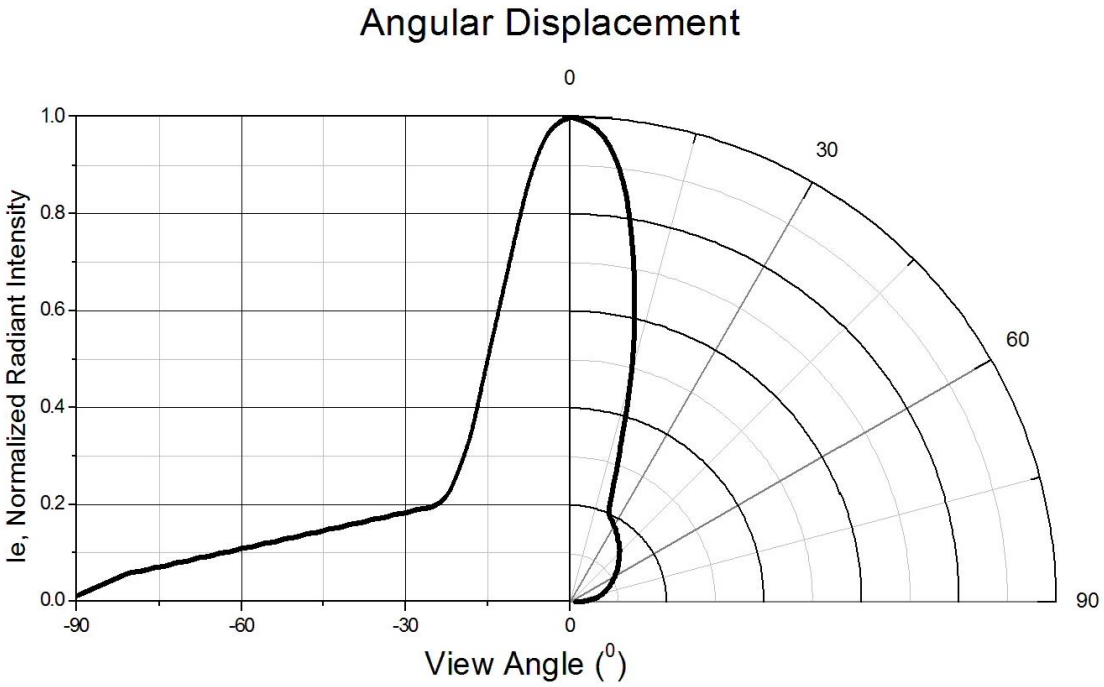
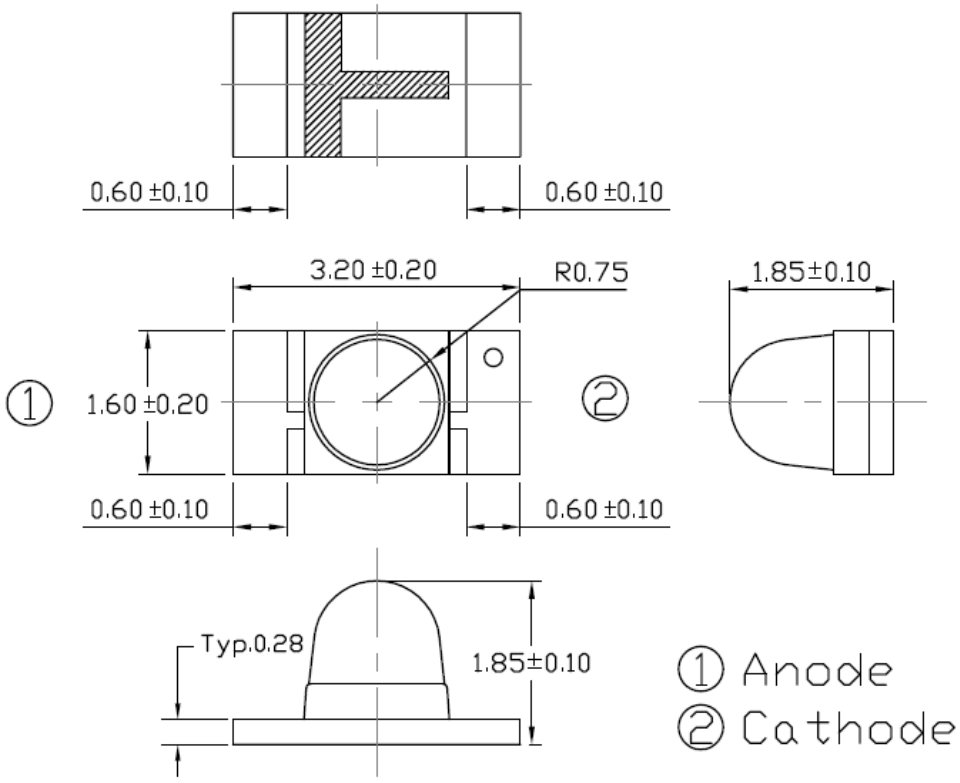
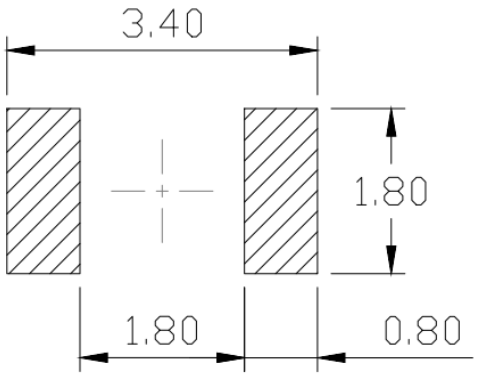


Figure 7

Package Dimension *All dimensions are in mm, unless otherwise stated*



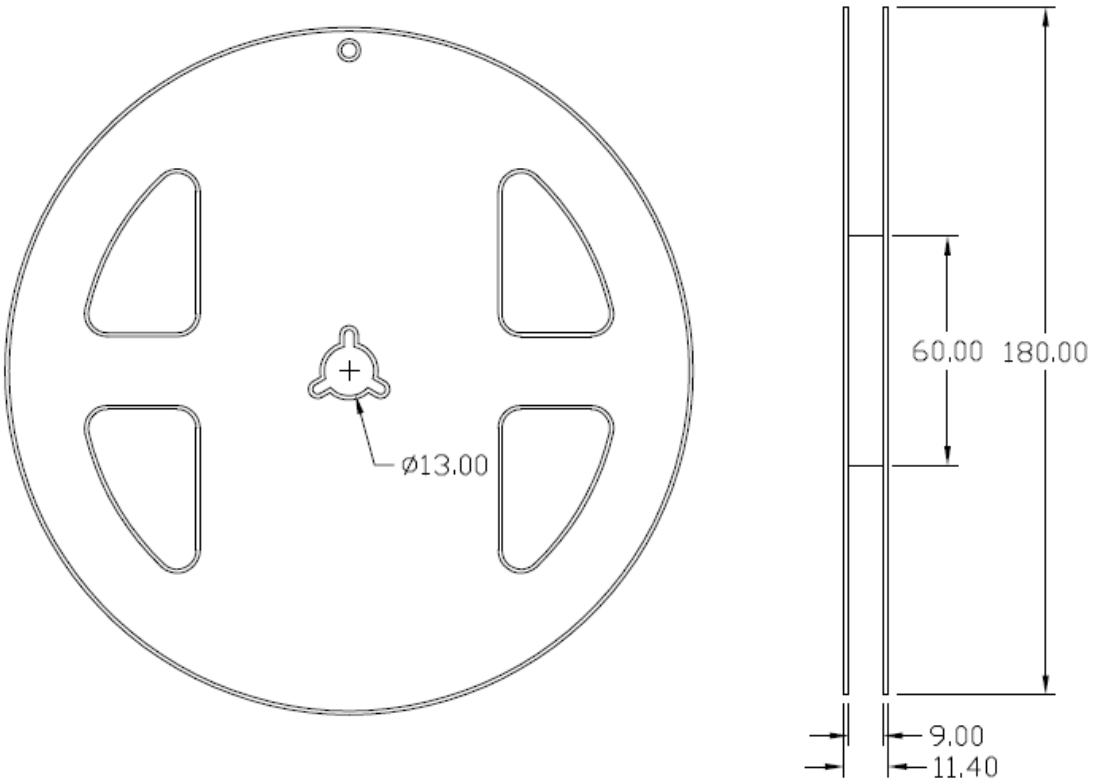
Recommended Soldering Mask *All dimensions are in mm, unless otherwise stated*



Ordering Information

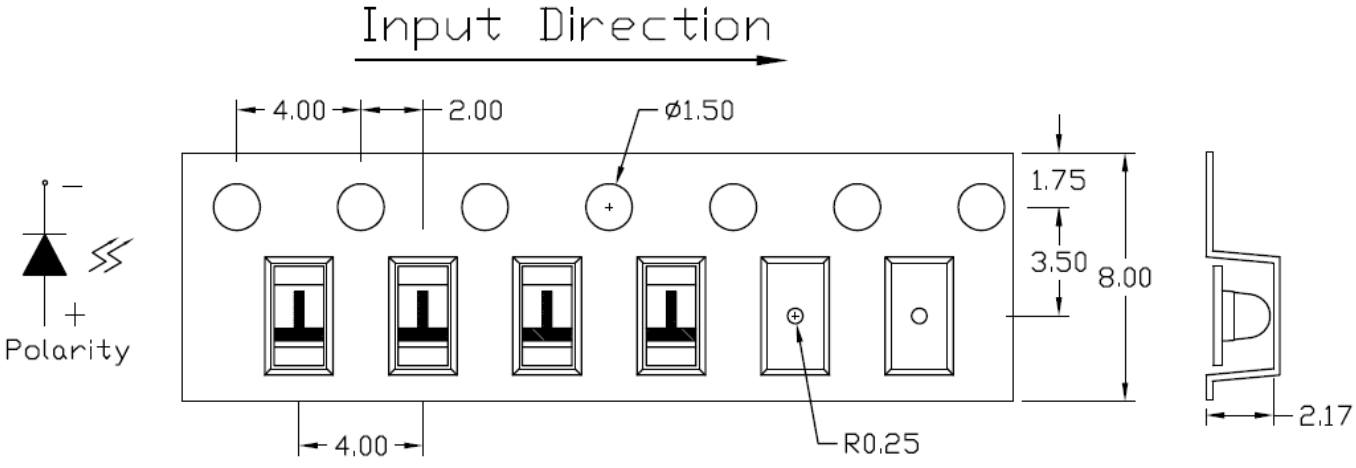
Part Number	*Description*	*Quantity*
IRP3216N18-D0(T1)	Tape & Reel	2000 pcs
IRP3216N18-D0(T2)	Tape & Reel	2000 pcs

Reel Dimension *All dimensions are in mm, unless otherwise stated*

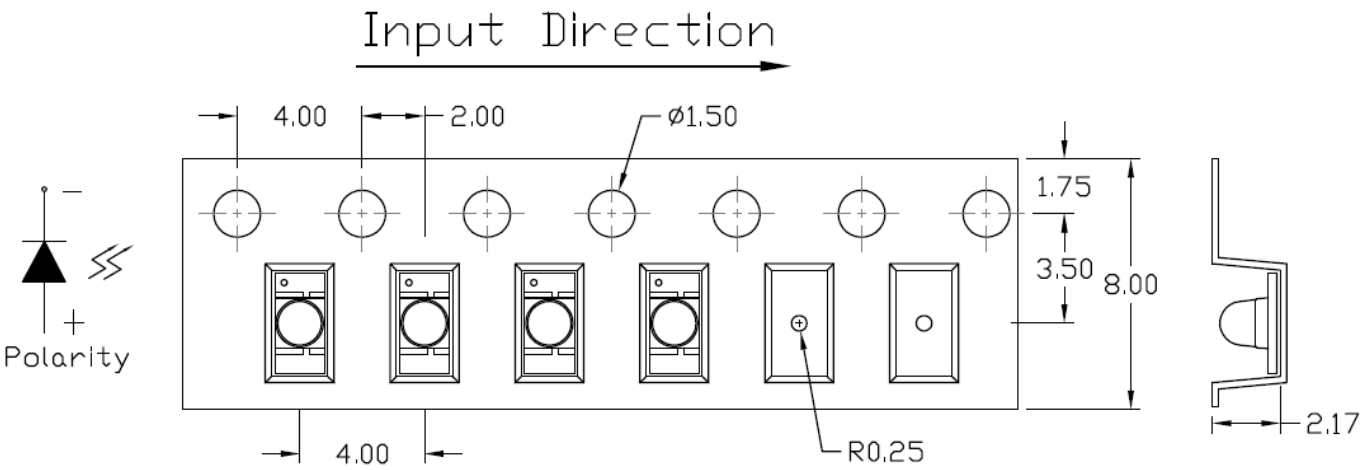


Tape Dimension *All dimensions are in mm, unless otherwise stated*

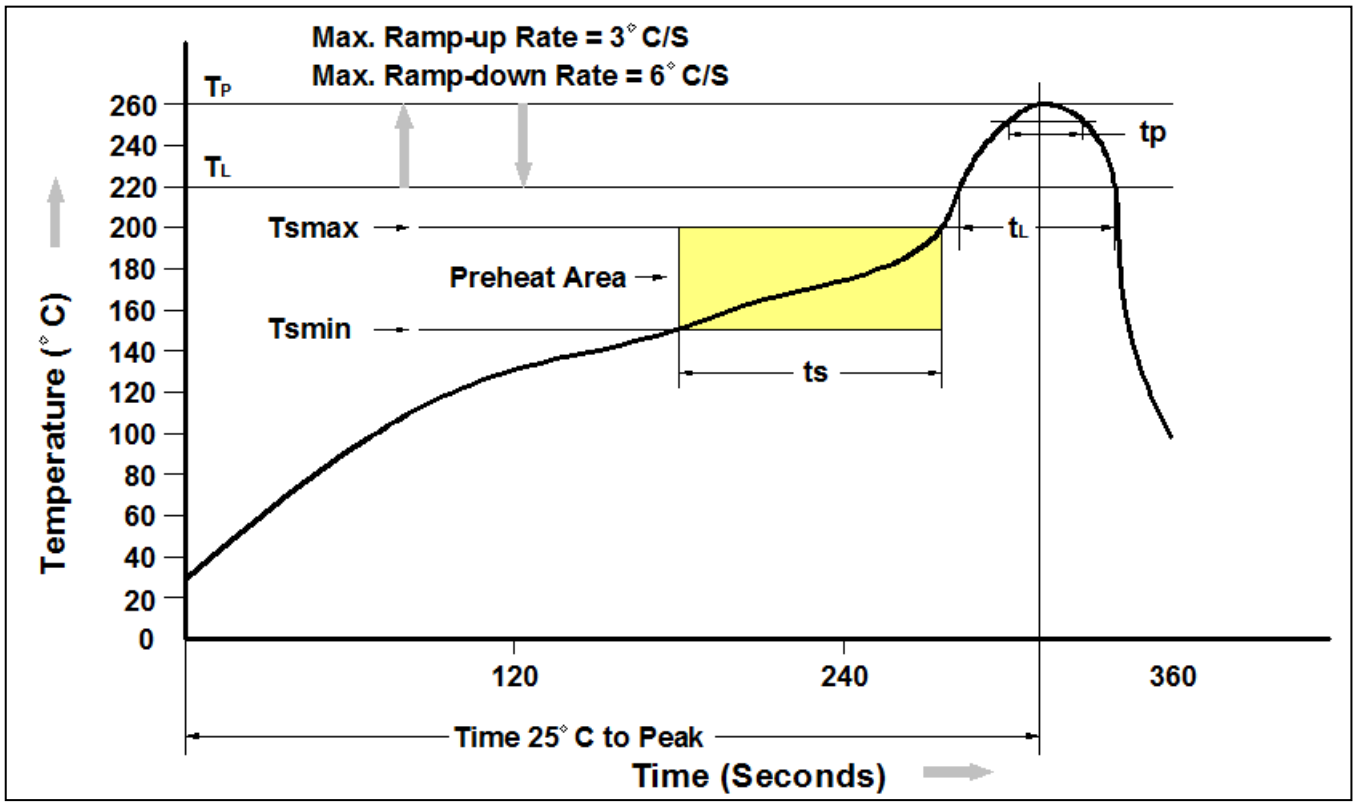
Part Number IRP3216N18-D0(T1)



Part Number IRP3216N18-D0(T2)



Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin to Tsmax)	60-120 seconds
Ramp-up Rate (t_L to t_P)	3°C/second max.
Liquidous Temperature (T_L)	217°C
Time (t_L) Maintained Above (T_L)	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (t_P) within 5°C of 260°C	30 seconds
Ramp-down Rate (T_P to T_L)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

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