3W Power Light LED

LGLW-313H1

DATA SHEET

DOC. NO : QW0905-LGLW-313H1#

DATE : 07 - Mar - 2008

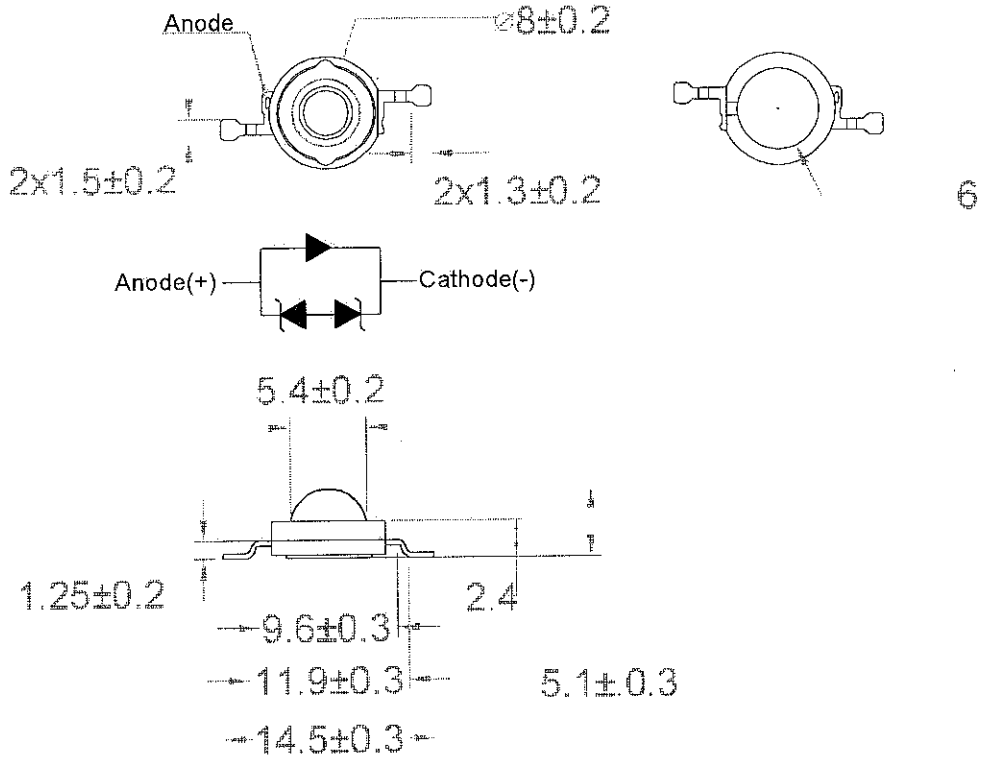
Features

*. High Flux per LED
*. Very long operating life(up to 100k hours).
*. Available in White.
*. More Energy Efficient than Incandescent and most Halogen lamps.
*. Low voltage DC operated..
*. Cool beam, safe to the touch.
*. Instant light(less than 100 ns).
*. Fully dimmable.
*. No UV.
*. Superior ESD protection..
*. Soldering methods: hand Soldering.

Typical Applications

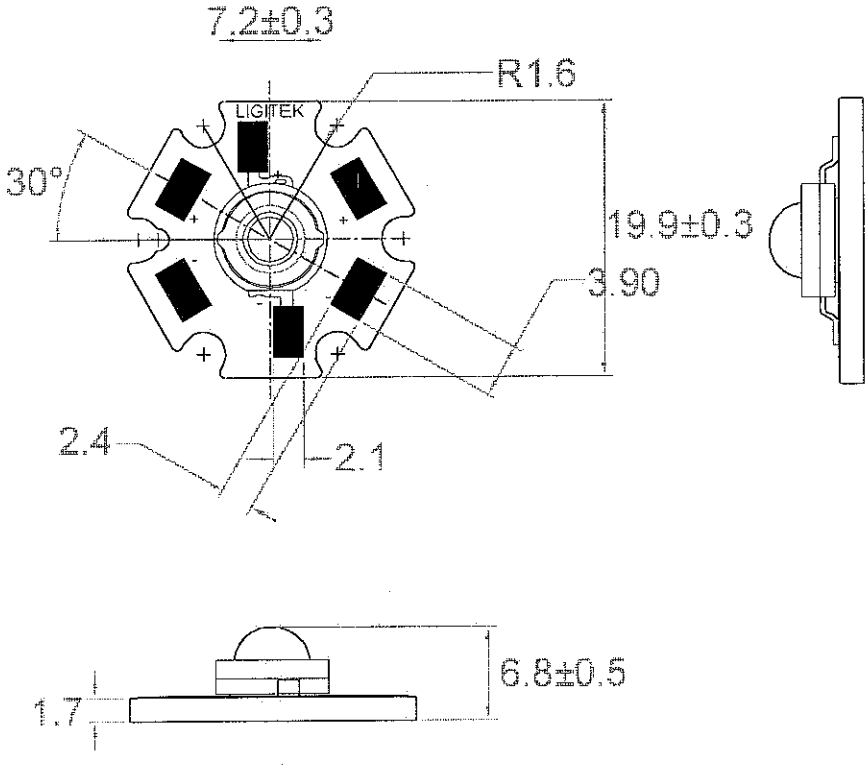
*. Reading Light (car,bus,aircraft)
*. Portable(flashlight,bicycle).
*. LCD Backlights / Light Guides.
*. Automotive Exterior (Stop-Tail-Turn,CHMSL,Mirror Side Repeat).
*. Commercial and Residential Architectural lighting.
*. Mini-accent / Uplighters / Downlighters / Orientation lighting
*. Fiber Optic Alternative / Decorative / Entertainment lighting.
*. Security / Garden lighting.
*. Cove / Undershelf / Task lighting.
*. Traffic signaling / Beacons / Rail crossing and Wayside lighting.
*. Decorative.
*. Sign and channel Letter.

Dimension



Note:1. All dimension are in millimeter.
2. The anode side of the device is denoted by a hole in the lead frame.
3. The slug has polarity as anode.
4. It is strongly recommended to apply on electrically isolated heat conducting film between the slug and contact surfaces.
5. Drawings are not to scale.
6. All dimensions without tolerances are for reference only.

Star Mechanical Dimensions



Note:1.All dimension are in millimeter

Absolute Maximum Ratings at Ta=25℃

Parameter	Symbol	Ratings	UNIT
		White	
DC Forward Current	I_F	700	mA
Power Dissipation	PD	2.8	W
Peak pulse current Duty 1/10@10KHz	I_{FP}	1000	mA
LED junction Temperature	Tj	125	℃
Reverse Current(VR=5V)	Ir	100	μA
ESD Sensitivity	V_B	±4000	V
Storage Temperature	Tstg	-40 ~ +120	℃
Operating Temperature	Topr	-40 ~ +100	℃
Manual Soldering Time at 260°C(Max)	Tsol	5	seconds

NOTE:
1. Proper current derating must be observed to maintain temperature below the maximum.
2. LEDS are not designed to be driven in reverse bias.

. Luminous Flux Characteristics at 700mA

(Ratings At 25℃ Ambient)

Radiation Pattern	PART NO	Emission Color	Luminous Flux @700mA(lm)			Units
			Min.	Typ.	Max.	
Lambertian	LGLW-313H1	White	100	----	----	lm

Note :
1. White emitters are built with InGaN.
2. Flux and power is measured with an accuracy of ±10%

. Forward Voltage Characteristics at 700mA

(Ratings At 25℃ Ambient)

Radiation Pattern	PART NO	Emission Color	Vf			Units
			Min.	Typ.	Max.	
Lambertian	LGLW-313H1	White	3.0	3.6	4.0	V

Note : Forward Voltage is measured with an accuracy of ±0.1V

. Color Tempeature Characteristics at 700mA

(Ratings At 25℃ Ambient)

Radiation Pattern	PART NO	Emission Color	CCT			Units
			Min.	Typ.	Max.	
Lambertian	LGLW-313H1	White	5000	----	10000	K

Note : CCT±5% tester tolerance.

. Tempeature Coefficient Of Forward Voltage&Thermal Resistance Junction To Board Characteristics at 700mA

(Ratings At 25℃ Ambient)

Radiation Pattern	PART NO	Emission Color	ΔVF/ΔT		Rth,j-B	
			Typ.	Units	Typ.	Units
Lambertian	LGLW-313H1	White	-2	mV/° C	18	°C/W

. Emission Angle Characteristics at 700mA

(Ratings At 25℃ Ambient)

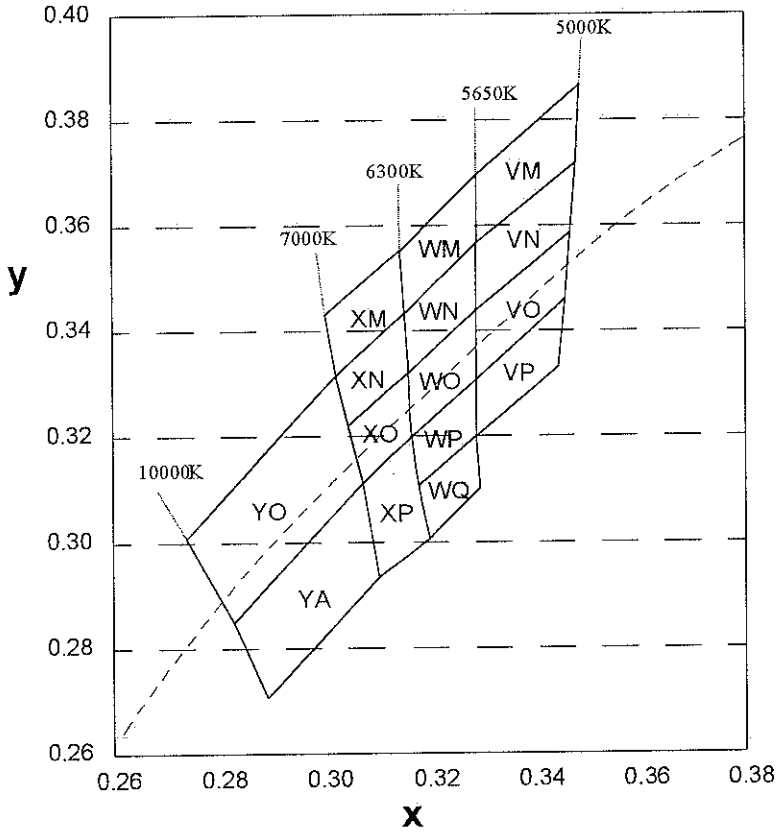
PART NO	Emission Color	Lambertian	Units
LGLW-313H1	White	130	Degrees

Brightness Code For High Power LED

Group	Luminous flux(lm)	
	Min	Max
F25-2	100	113.6
F26	113.6	147.7

Note : Flux is measured with an accuracy of ±10%

White Binning Structure Graphical Representation



Color Bins
White Bin Structure
15 Color bins, CCT Range 10000K to 5000K

Bin Code	x	y	Typ. CCT (K)
VO	0.329 0.329 0.346 0.344	0.331 0.345 0.359 0.344	5300
VN	0.329 0.329 0.347 0.346	0.345 0.357 0.372 0.359	5300
VP	0.329 0.344 0.343 0.329	0.331 0.344 0.332 0.320	5300
VM	0.329 0.329 0.348 0.347	0.357 0.369 0.386 0.372	5300
WO	0.329 0.329 0.317 0.316	0.345 0.331 0.320 0.333	6000
WN	0.329 0.316 0.315 0.329	0.345 0.333 0.344 0.357	6000
WP	0.329 0.329 0.318 0.317	0.331 0.320 0.310 0.320	6000
WQ	0.329 0.330 0.320 0.319	0.320 0.310 0.301 0.310	6000
WM	0.329 0.329 0.315 0.314	0.369 0.357 0.344 0.355	6000
XO	0.308 0.305 0.316 0.317	0.311 0.322 0.333 0.320	6700
XN	0.305 0.303 0.315 0.316	0.322 0.333 0.344 0.333	6700
XP	0.308 0.317 0.320 0.311	0.311 0.320 0.301 0.293	6700
XM	0.301 0.314 0.315 0.303	0.342 0.355 0.344 0.333	6700
YO	0.308 0.283 0.274 0.303	0.311 0.284 0.301 0.333	8000
YA	0.308 0.311 0.290 0.283	0.311 0.293 0.270 0.284	8000

NOTE: Tolerance on each color bin(x,y)is±0.01

Fig.1 Forward current vs. Forward Voltage

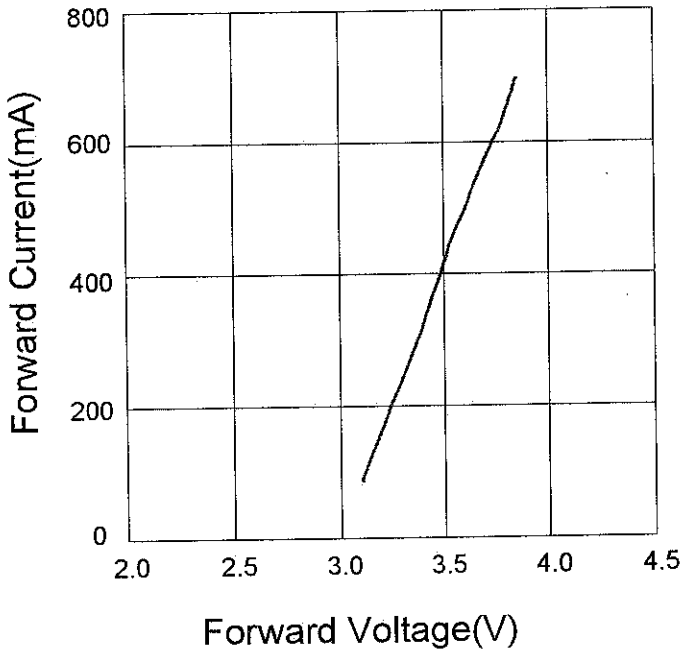


Fig.2 Operating current vs. Ambient Temperature

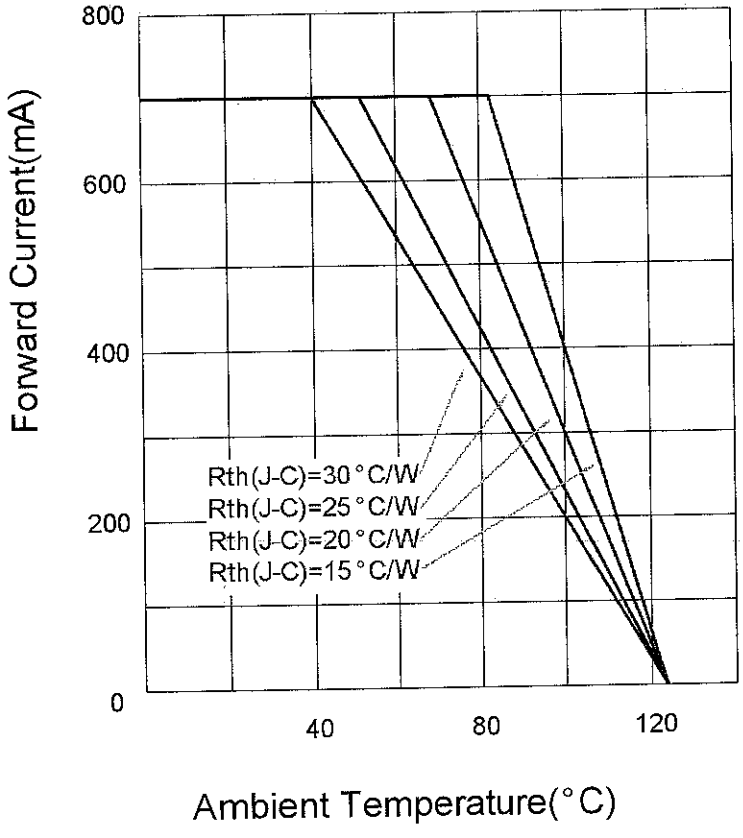


Fig.3 Forward current vs. Luminous Flux

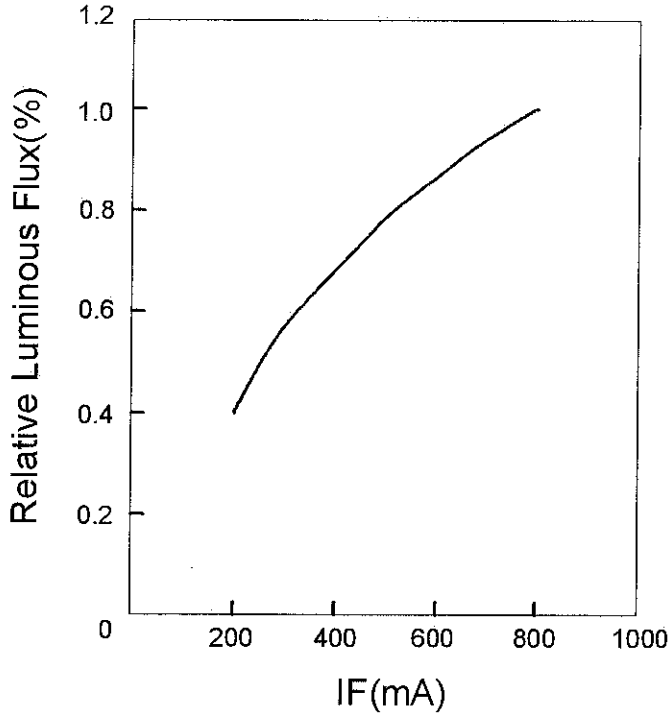


Fig.4 Junction Temperature vs. Forward Voltage

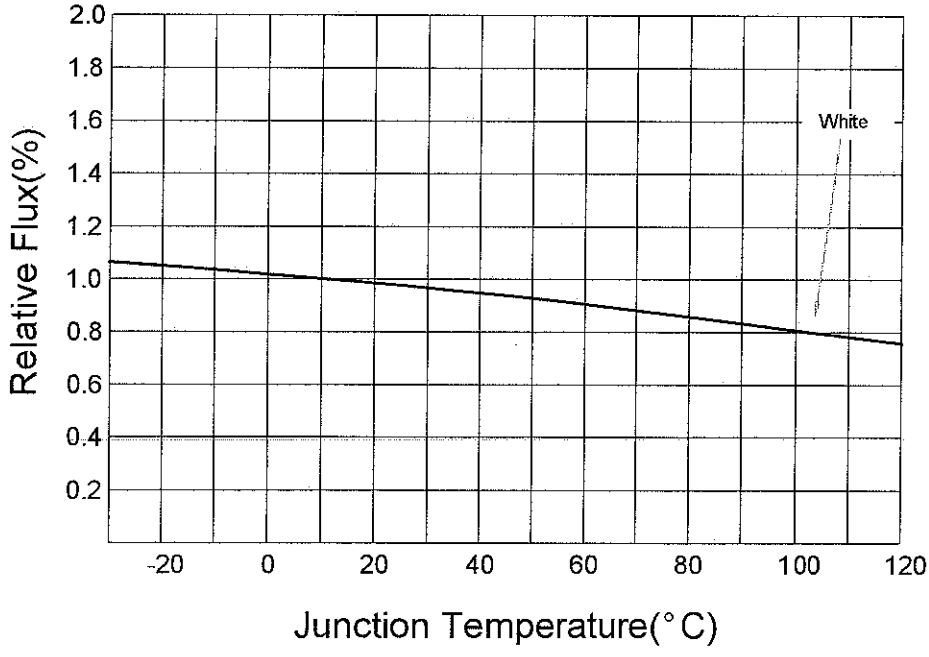


Fig.5 Luminous Spectrum(Ta=25℃)

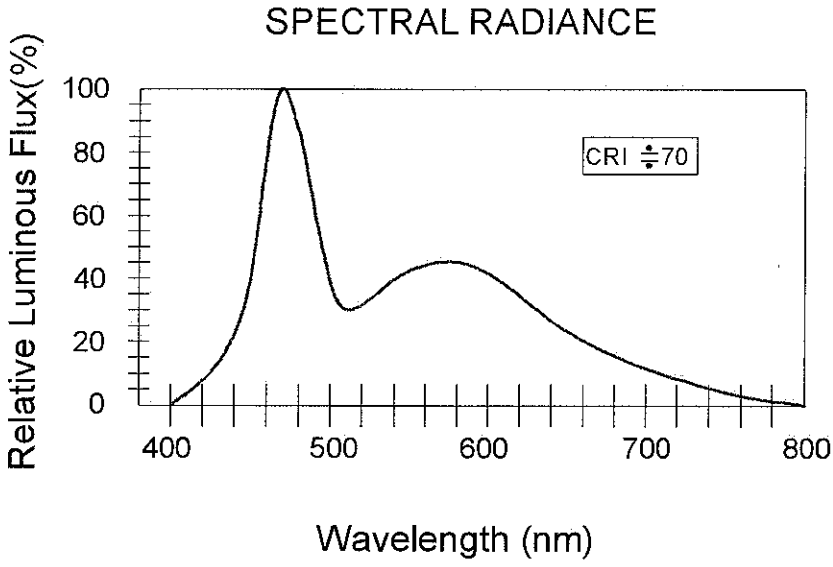
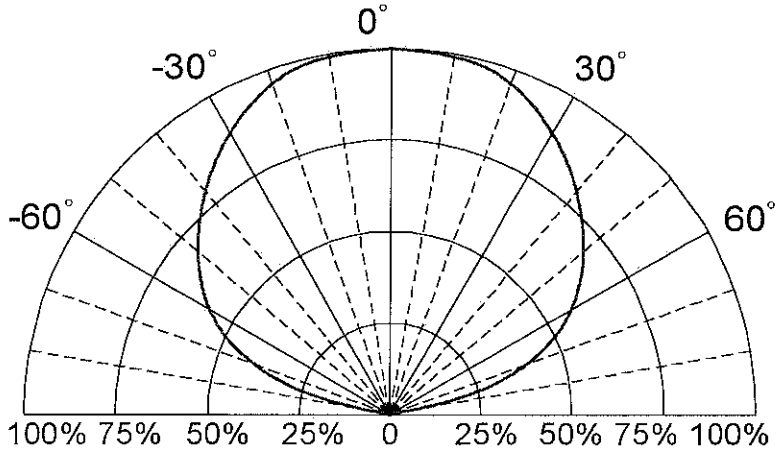
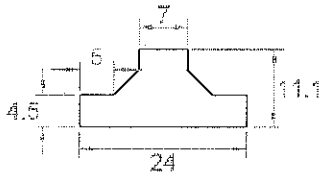


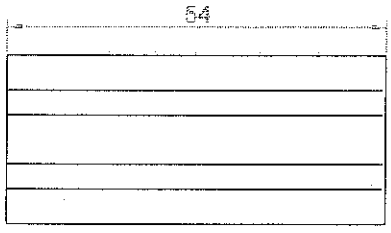
Fig.6 Directivity Radiation



PACKING SPECIFICATION

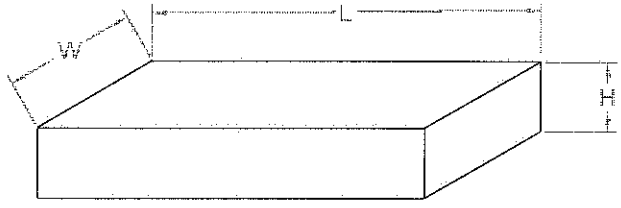
1. 25PCS / TUBE





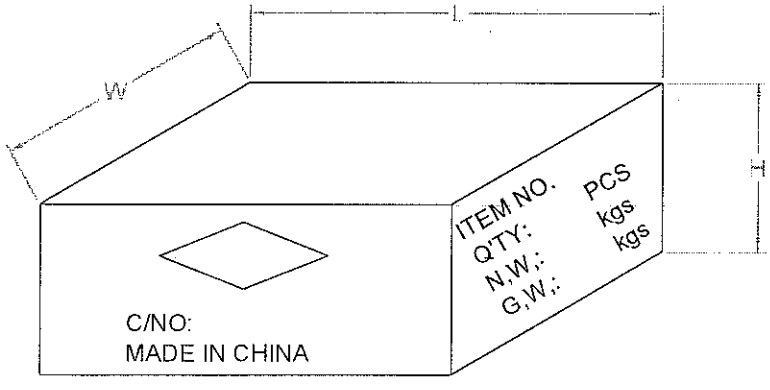
2. 80 TUBES / INNER BOX

SIZE : L X W X H 55cm X 22.5cm X 10cm



3. 4 INNER BOXES / CARTON

SIZE : L X W X H 56.5cm X 47.5cm X 24cm



Reliability Test

Item	Description	Stress Condition	Test Duration
RTOL	Room Temperature Operation Life	25°C, Max. IF	1000 hours
WHT	Wet High Temperature	85°C/85%RH	1000 hours
TC	Temperature Cycling	-40/+110°C, 30min dwell,<5min trans.	200 cycles
TS	Thermal Shock	-40/+110°C, 20min dwell,<20min trans.	200 cycles
HTSL	High Temperature Storage Life	120°C	1000 hours
LTSL	Low Temperature Storage Life	-40°C	1000 hours
SHR	Solder Heat Resistance	260±5°C, 5secs	
MS	Mechanical Shock	1500G,0.5msec pulse, 5 shocks each 6 axis	
ND	Natural Drop	On concrete from 1.2m, 3xtimes	
RV	Random Vibration	6G RMS from 10 to 2KHz, 10mins/axis	
VVF	Variable Vibration Frequency	10-2000-10Hz, 20G 1 min, 1.5mm, 3timesx/axis	

Note :

Failure criteria:

Electrical failures

V_F shife >= 10%

I_R < 50uA@Vr = 5v

Ligitek output Degradation

%I_V shift >= 30%@1000hrs or 200cycle

Visual failures

Broken or damaged package or lead

Dimension out of tolerance