

# BRIGHT LED ELECTRONICS CORP.

## LED DISPLAY SPECIFICATION

●COMMODITY : 0.56"(14.20mm) FOUR DIGIT LED DISPLAY

●DEVICE NUMBER : BQ-N 512RD

VERSION : 1.0 / 2000.06.09

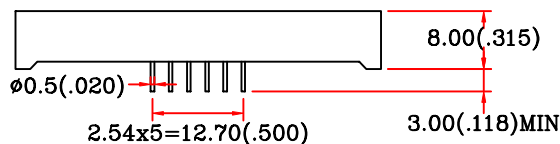
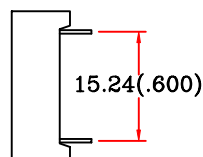
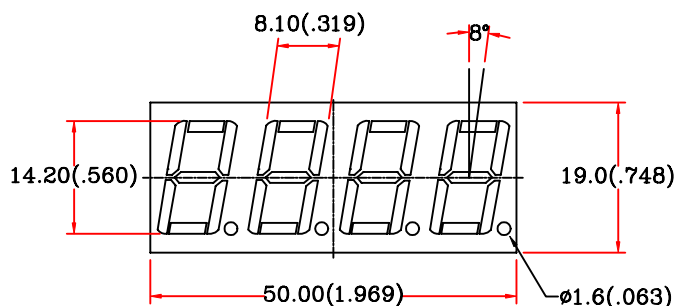
●ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

Chip		Absolute Maximum Rating				Electro-optical Data (At 10mA)			Surface Color	Segment Color
Emitted Color	Peak Wave Length $\lambda$ P(nm)									
		$\Delta \lambda$ (nm)	Pd (mW)	If (mA)	Peak If(mA)	Vf(V)		Iv Typ. (mcd)		
						Typ.	Max.			
Green	568	30	80	30	150	2.2	2.5	3.5	Black	White

●ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

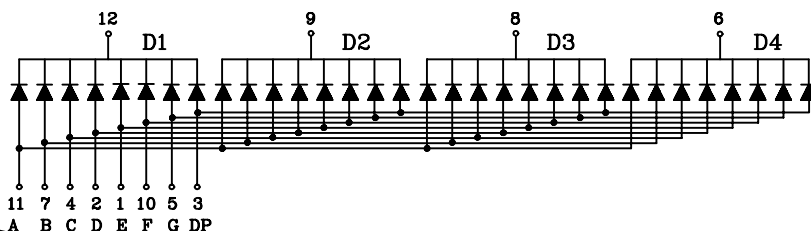
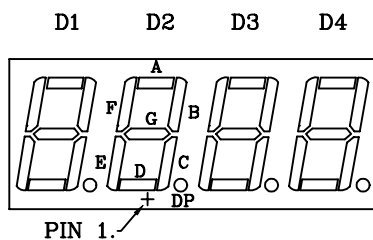
Reverse Voltage ..... 5V  
Reverse Current (-Vr=5V) ..... 50 $\mu$ A  
Operating Temperature Range ..... -40°C ~ 85°C  
Storage Temperature Range ..... -40°C ~ 100°C  
Lead Soldering Temperature (1/16" From Body).....260°C For 5 Seconds

### PACKAGE DIMENSIONS:



NOTES:  
1.All dimensions are in millimeters(inches).  
2.Tolerance is  $\pm 0.25$ mm(.01") unless otherwise specified.  
3.Specifications are subject to change without notice.

### PIN FUNCTIONS:



RELEASED:

曾  
2002.06.11  
志宏

ENGINEER:

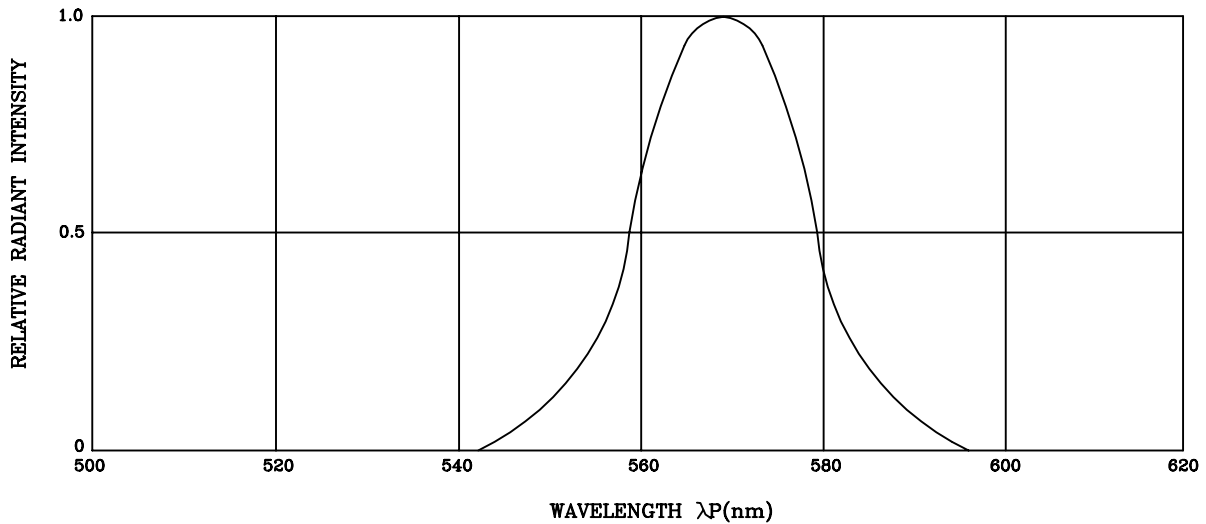
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2002.06.11  
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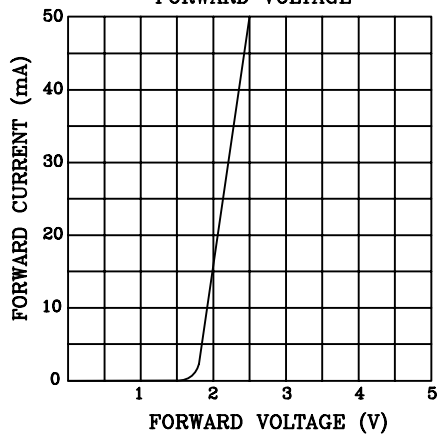
## TYPICAL CHARACTERISTICS

DEVICE NUMBER: BQ-N512RD

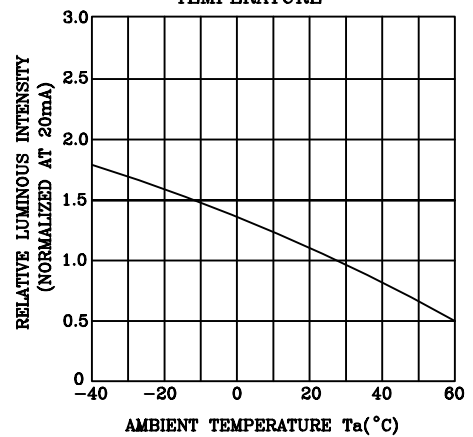
SPECTRAL DISTRIBUTION



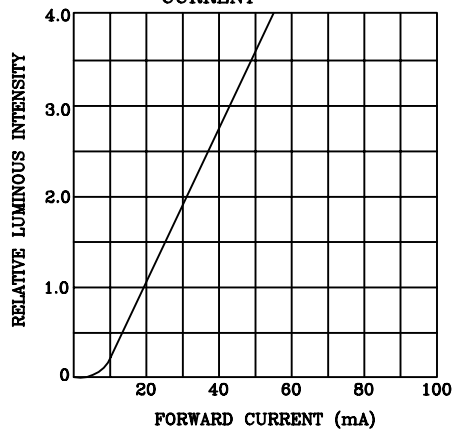
FORWARD CURRENT VS.  
FORWARD VOLTAGE



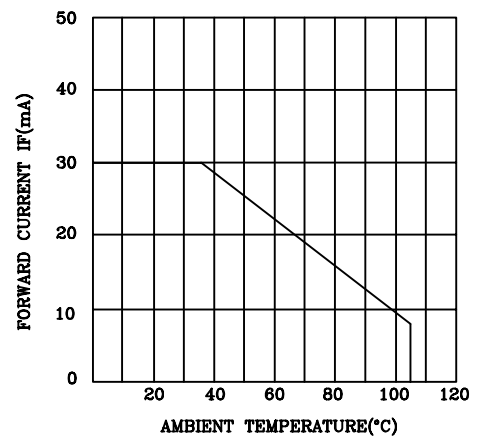
RELATIVE LUMINOUS  
INTENSITY VS. AMBIENT  
TEMPERATURE



RELATIVE LUMINOUS  
INTENSITY VS. FORWARD  
CURRENT



FORWARD CURRENT  
DERATING CURVE



# RELIABILITY TEST

DEVICE NO.: BQ-N512RD

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 :B-1	Connect with a power If=25mA Ta=Under room temperature Test time=1,000hrs(-24hrs,+72hrs)	0/10
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS C 7021 :B-11	Ta=65°C±5°C RH=90%-95% Test time=240hrs±2hrs	0/10
	High Temperature High Humidity Reverse Bias		Ta=65°C±5°C RH=90%-95% Test time=500hrs(-24hrs,+48hrs)	0/10
	High Temperature Storage	MIL-STD-883:1008 JIS C 7021 :B-10	High Ta=85°C±5°C Test time=1,000hrs(-24hrs,+72hrs)	0/10
	Low Temperature Storage	JIS-C-7021 :B-12	Low Ta=-35°C±5°C Test time=1,000hrs(-24hrs,+72hrs)	0/10
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 :A-4	-35°C ~ 25°C ~ 85°C ~ 25°C 30min 5min 30min 5min Test Time=10cycle	0/10
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	85°C±5°C ~ -35°C±5°C 10min 10min Test Time=10cycle	0/10
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1	T.sol=260±5°C Dwell Time=10±1sec.	0/10
	Solderability	MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 :A-2	T.sol=230±5°C Dwell Time=5±1sec.	0/10

## JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

Measuring items	Symbol	Measuring conditions	Judgement criteria for failure
Forward voltage	VF	IF=10mA	Over Ux1.2
Reverse current	IR	VR=5V	Over Ux2
Luminous intensity	IV	IF=10mA	Below Sx0.5

Note: 1.U means the upper limit of specified characteristics. S means initial value.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.