Kingbright

XPower

PRELIMINARY SPEC

Part Number: AAD1-9090BRGC-01/3

Blue
Reddish-Orange
Green

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE

Features

- ●Super high flux output and high luminance.
- ●Designed for high current operation.
- ●Low thermal resistance.
- ●Low voltage DC operated.
- ●Superior ESD protection.
- ●Not reflow compatible.
- ●The component is internally protected with silicone gel.
- ●RoHS compliant.

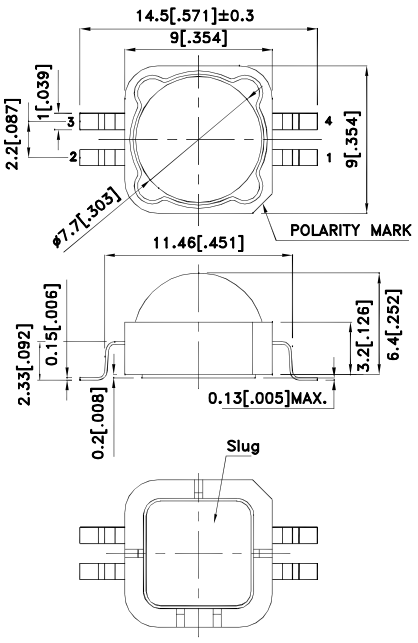
Application Note

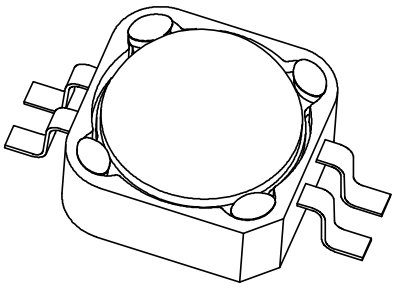
Static electricity and surge damage the LEDS.
It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.
All devices, equipment and machinery must be electrically grounded.

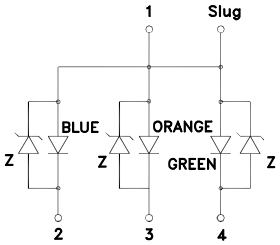
Applications

- ● traffic signaling.
- ● backlighting (illuminated advertising , general lighting).
- ● interior and exterior automotive lighting.
- ● substitution of micro incandescent lamps.
- ● portable light source (e.g. bicycle flashlight).
- ● signal and symbol luminaire for orientation.
- ● marker lights (e.g. steps, exit ways, etc).
- ● decorative and entertainment lighting.
- ● indoor and outdoor commercial and residential architectural lighting.

Package Dimensions







Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. Specifications are subject to change without notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

Selection Guide

Part No.	Dice	Lens Type	luminous Intensity [2] Iv(cd)@ 350mA		Φv (lm) [2] @ 350mA		Viewing Angle [1]
			Min.	Typ.	Min.	Typ.	2θ1/2
AAD1-9090BRGC-01/3	BLUE (AlGaInN)	WATER CLEAR	2.5	3.5	15	20	135°
	Reddish-Orange (AlGaInP)		6.7	8	25	30	
	Green (AlGaInN)		10	16	32	50	

Notes:
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2. Luminous intensity / luminous Flux: +/-15%.

Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	Device	Value	Unit
Power dissipation	P_t	Blue	1.25	W
		Reddish-Orange	1.05	
		Green	1.33	
Junction temperature	T_J	Blue	110	℃
		Reddish-Orange	110	
		Green	110	
Operating Temperature	Top	Blue	-40 To +100	℃
		Reddish-Orange		
		Green		
Storage Temperature	Tstg	Blue	-40 To +100	℃
		Reddish-Orange		
		Green		
DC Forward Current [1]	I_F	Blue	350	mA
		Reddish-Orange	350	
		Green	350	
Peak Forward Current [2]	I_{FM}	Blue	500	mA
		Reddish-Orange	500	
		Green	500	
Thermal resistance [1]	$R_{th\ j\text{-}slug}$	Blue	9	℃/W
		Reddish-Orange	12	
		Green	9	
Electrostatic Discharge Threshold (HBM)		Blue	8000	V
		Reddish-Orange		
		Green		
Iron Soldering [3]		Blue	350℃ For 3 Seconds	
		Reddish-Orange		
		Green		

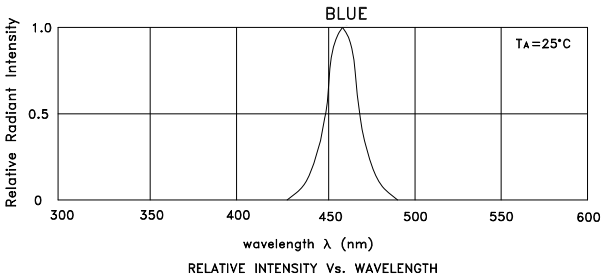
Notes:
1. Results from mounting on MCPCB.
2. 1/10 Duty Cycle, 0.1ms Pulse Width.
3.1.29mm distance from solder joint to package.

Electrical / Optical Characteristics at T_A=25°C

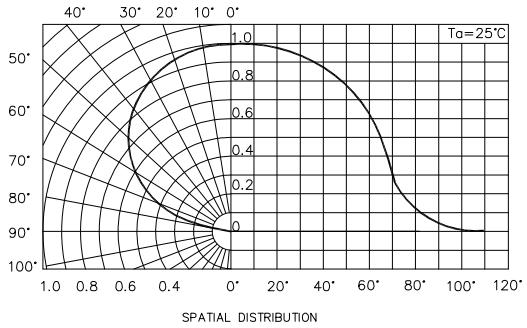
Parameter	Symbol	Device	Value			Unit
			Min.	Typ.	Max.	
Wavelength at peak emission I_F=350mA	λpeak	Blue		452		nm
		Reddish-Orange		640		
		Green		520		
Dominant Wavelength I_F=350mA	λdom [1]	Blue		458		nm
		Reddish-Orange		625		
		Green		530		
Spectral bandwidth at 50%$\Phi_{REL\ MAX}$ I_F=350mA	Δλ	Blue		20		nm
		Reddish-Orange		30		
		Green		35		
Forward Voltage I_F=350mA	V_F [2]	Blue	2.8	3.2	3.6	V
		Reddish-Orange	2.0	2.5	3.0	
		Green	2.7	3.3	3.8	
Temperature coefficient of λpeak I_F=350mA, -10°C≤ T≤100°C	TCλpeak	Blue		0.2		nm/°C
		Reddish-Orange		0.12		
		Green		0.16		
Temperature coefficient of λdom I_F=350mA, -10°C≤ T≤100°C	TCλdom	Blue		0.1		nm/°C
		Reddish-Orange		0.05		
		Green		0.14		
Temperature coefficient of V_F I_F=350mA, -10°C≤ T≤100°C	TCv	Blue		-3.2		mV/°C
		Reddish-Orange		-2.6		
		Green		-2.26		

Notes:
1.Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.

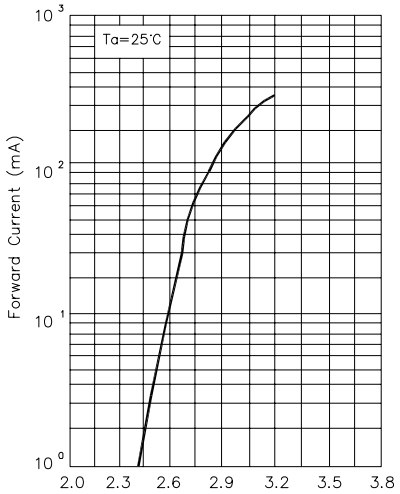
AAD1-9090BRGC-01/3
Blue



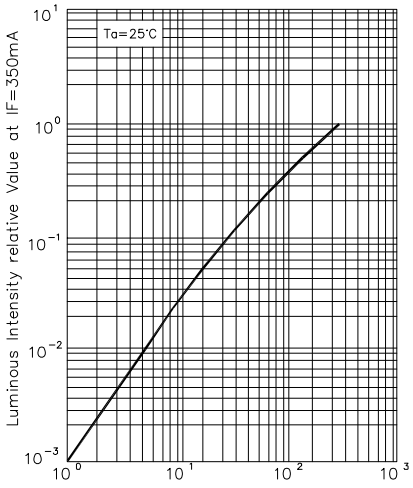
RELATIVE INTENSITY Vs. WAVELENGTH



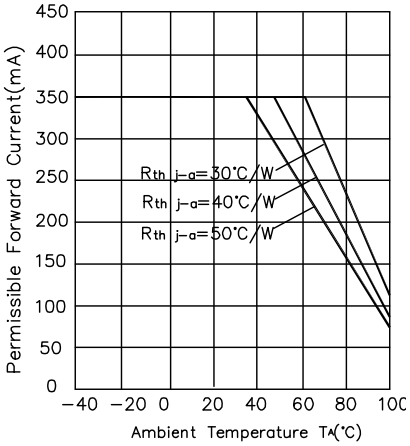
SPATIAL DISTRIBUTION



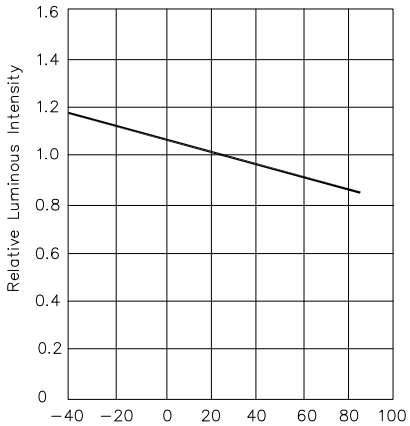
Forward voltage (V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE



Forward current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT

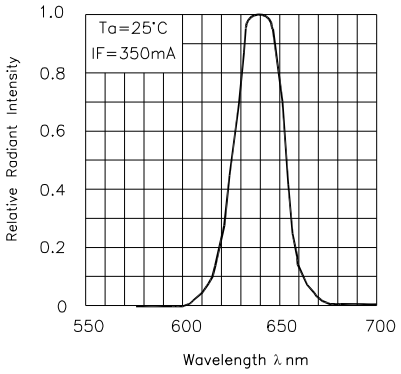


FORWARD CURRENT
DERATING CURVE

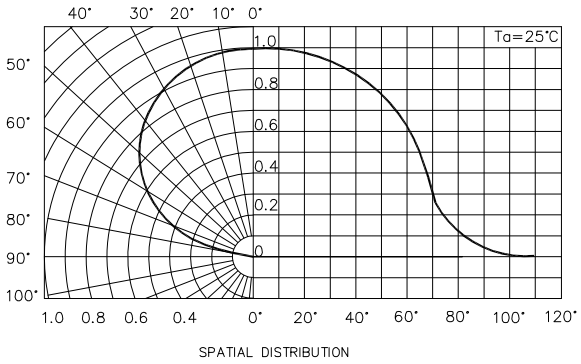


LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

Reddish-Orange



RELATIVE INTENSITY Vs. WAVELENGTH



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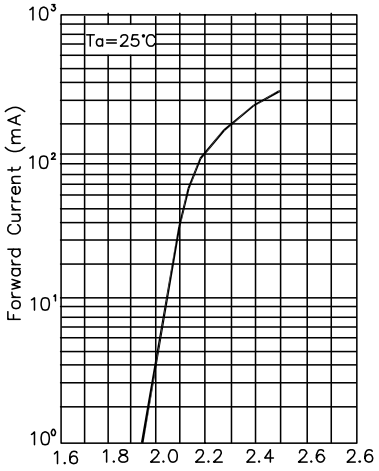
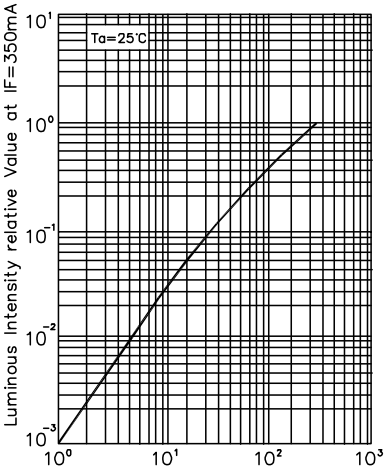
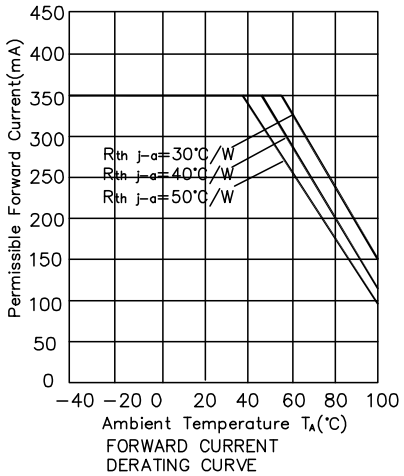


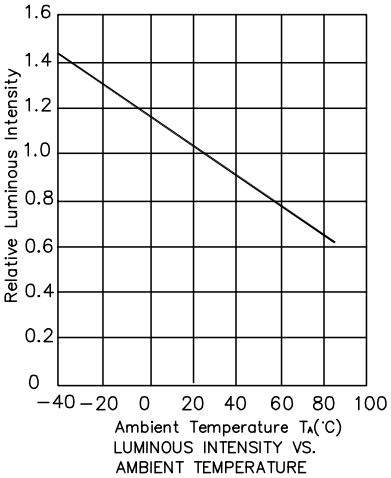
FORWARD CURRENT Vs.
FORWARD VOLTAGE



LUMINOUS INTENSITY Vs.
FORWARD CURRENT

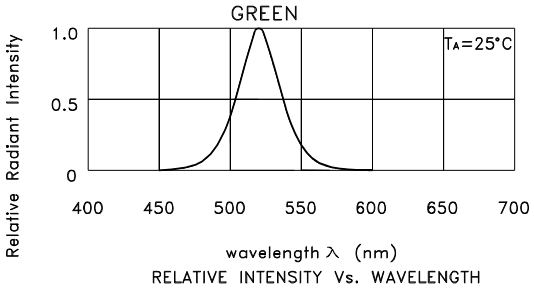


FORWARD CURRENT
DERATING CURVE



LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

Green



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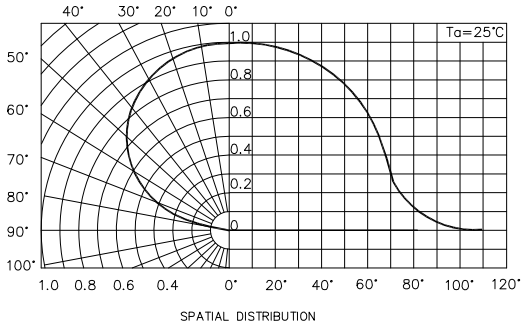

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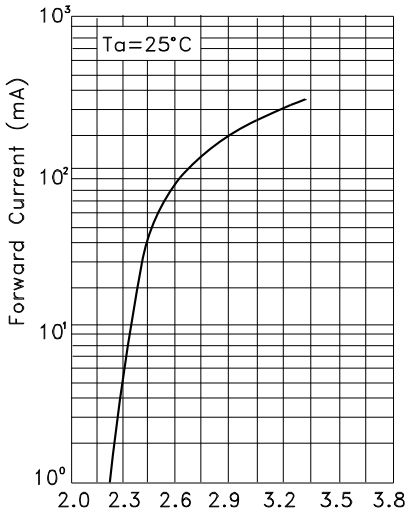
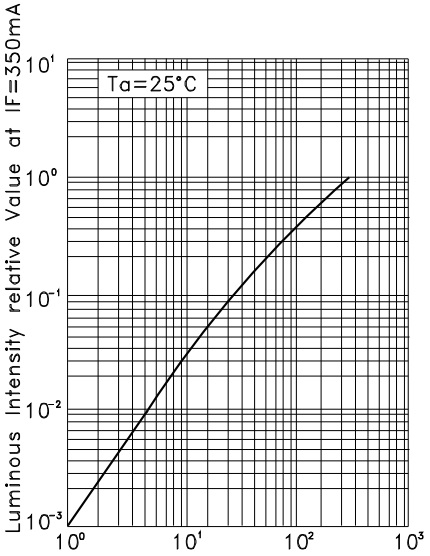


FORWARD CURRENT Vs.
FORWARD VOLTAGE



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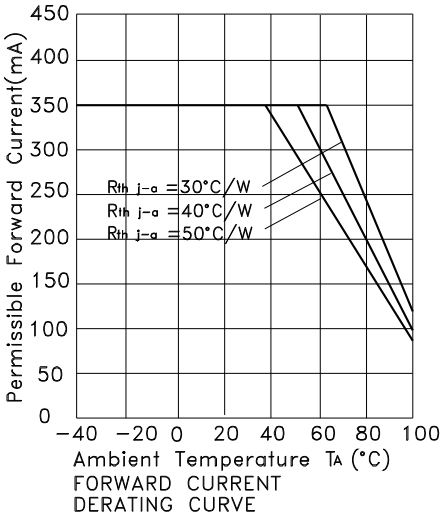
FORWARD CURRENT



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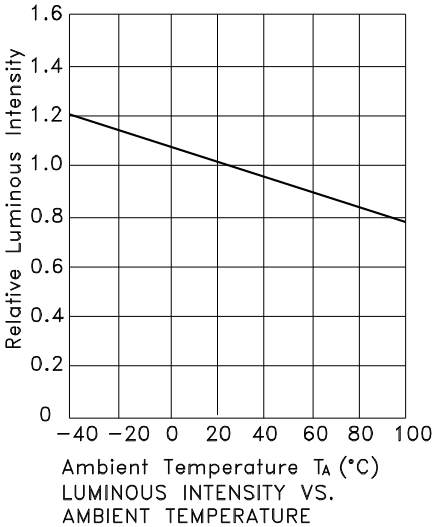
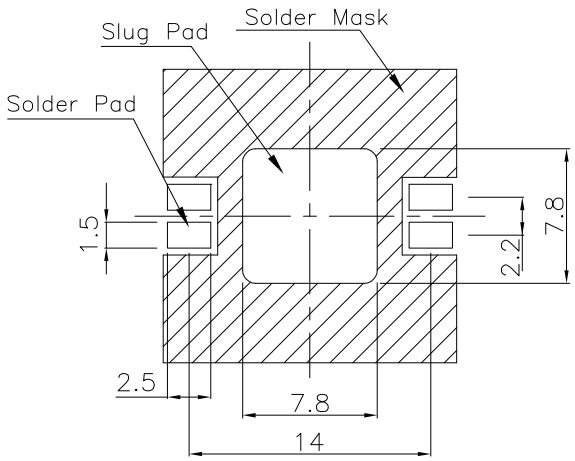
DERATING CURVE

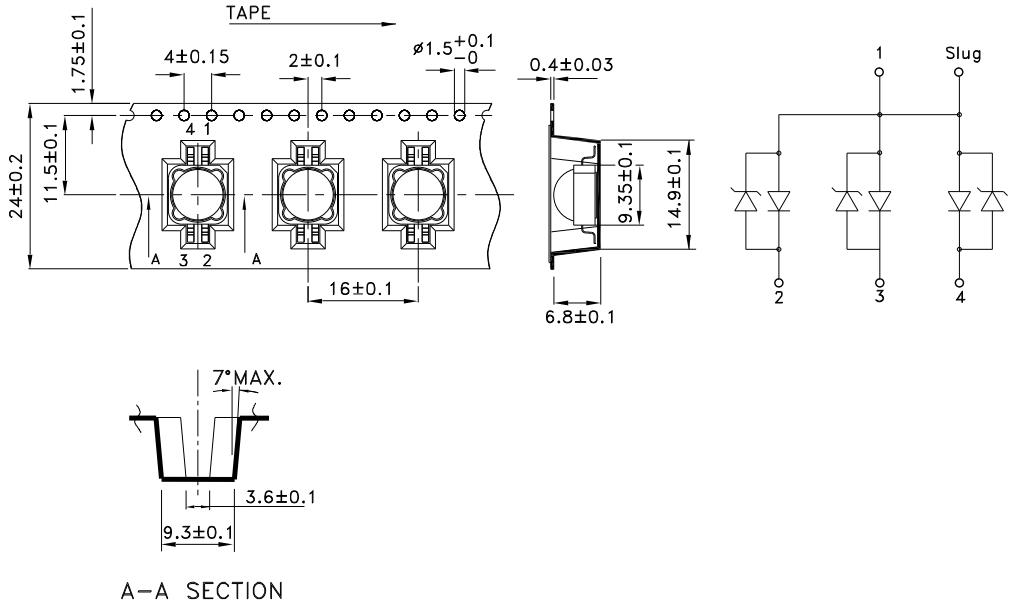


LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

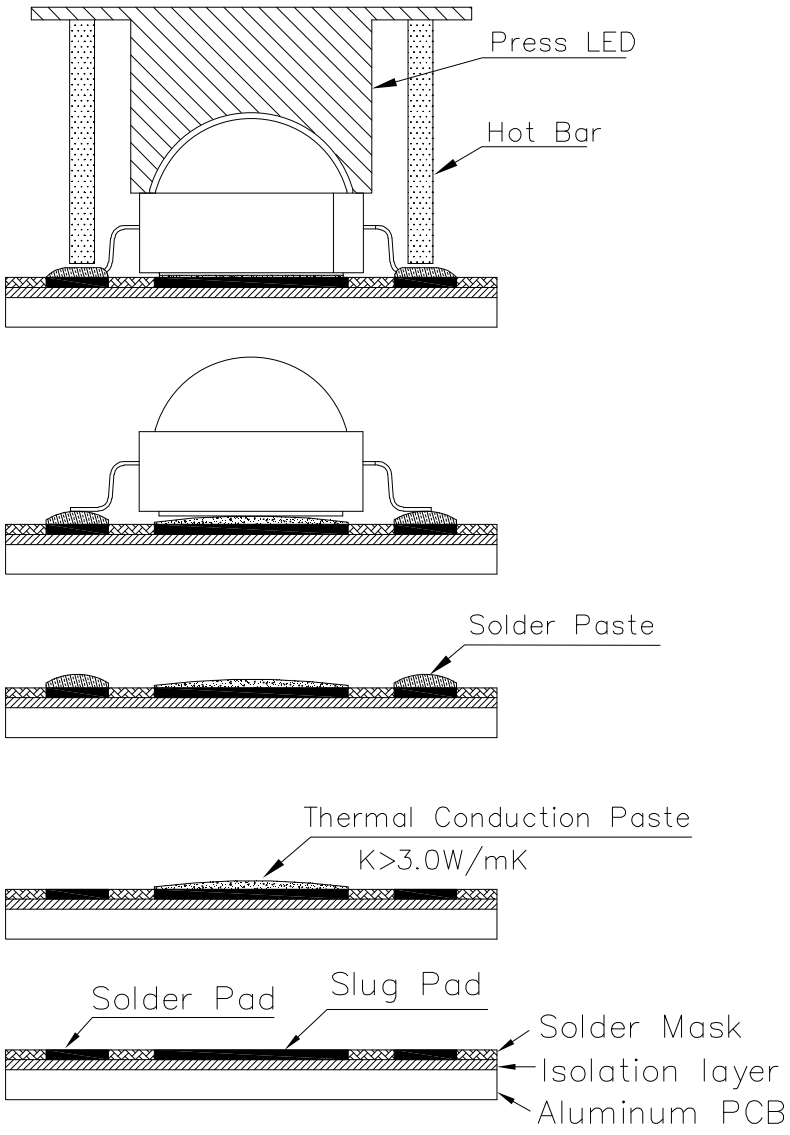
AAD1-9090BRGC-01/3
Recommended Soldering Pattern
(Units : mm; Tolerance: ±0.1)



Tape Specifications
(Units : mm)



AAD1-9090BRGC-01/3
Recommended Solder Steps



PACKING & LABEL SPECIFICATIONS **AAD1-9090BRGC-01/3**