EPISTAR

ES-VABCF28B

InGaN F-series Blue LED Chip

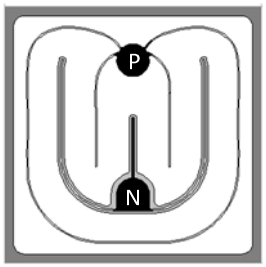
> Mechanical Specification:

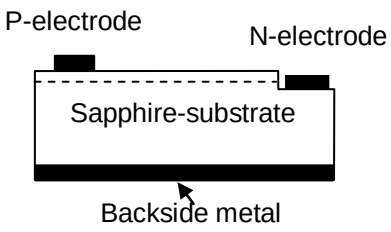
(1) Dimension
- Chip size: 28 mil x 28mil (710 ± 25 μm x 710 ± 25 μm)
- Thickness: 5.9 mil (150 ± 10 μm)
- P bonding pad: 3.5 mil (90 ± 10 μm)
- N bonding pad: 3.5 mil (90 ± 10 μm)

(2) Metallization
- Topside P electrode: Au alloy
- Topside N electrode: Au alloy
- Backside metal: Al alloy

Features:
- High radiant flux
- Long operation life
- Lambertain radiation
- High anti-ESD level

Applications:
- Automotive





> Electro-optical Characteristics at 25°C: (1)

Parameter	Symbol		Condition	Min.	Typ.	Max.	Unit
Forward Voltage	Vf1		If = 10μA	1.6	-	-	V
	Vf2		If = 350mA	-	3.2	3.4	V
Reverse Current	Ir		Vr = 5V	-	-	1.0	μA
Dominant Wavelength(2)	λd		If = 350mA	450	-	465	nm
Spectra Half-width	Δλ		If = 350mA	-	25	-	nm
Radiant Flux(3)(4)	Po	M52	If = 350mA	320	-	340	mW
		M53		340	-	360	
		M54		360	-	380	

Note:
(1) ESD protection during chip handling is recommended.
(2) Basically, the wavelength span is 15nm; however, customers' special requirements are also welcome.
(3) Radiant flux is determined by using an Ag-plated TO-can header without an encapsulant.
(4) Radiant flux measurement allows a tolerance of ±15%.

> Absolute Maximum Ratings:

Parameter	Symbol	Condition	Rating	Unit
Forward DC Current	If	Ta = 25˚C	≤ 450	mA
Reverse Voltage	Vr	Ta = 25˚C	≤ 5	V
Junction Temperature	Tj	-	≤ 125	˚C
ESD withstand voltage(HBM)(2)	V_{ESD}	-	Up to 2	KV
Storage Temperature	Tstg	Chip	-40 ~ +85	˚C
		Chip-on-tape/storage	5 ~ 35	˚C
		Chip-on-tape/transportation	-20 ~ +65	˚C
Temperature during Packaging	-	-	280(<10sec)	˚C

Note: (1) Maximum ratings are package dependent. The above maximum ratings were determined using a Metal Core Printed Circuit Board (MCPCB) without an encapsulant. Stresses in excess of the absolute maximum ratings such as forward current and junction temperature may cause damage to the LED.
(2) According to ANSI/ESDA/JEDEC JS-001

> Characteristic Curves:

Fig.1 – Relative luminous Intensity vs. Forward Current

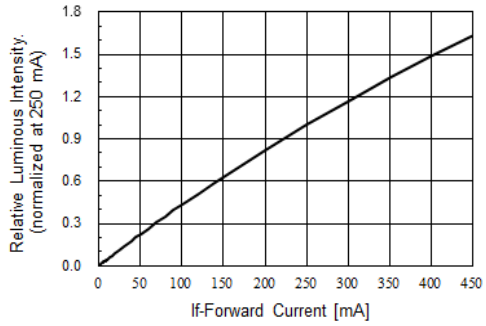


Fig.2 – Forward Current vs. Forward Voltage

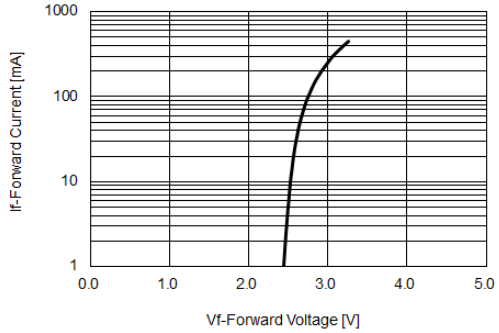


Fig.3 – Relative Intensity (@250mA) vs. Ambient Temperature

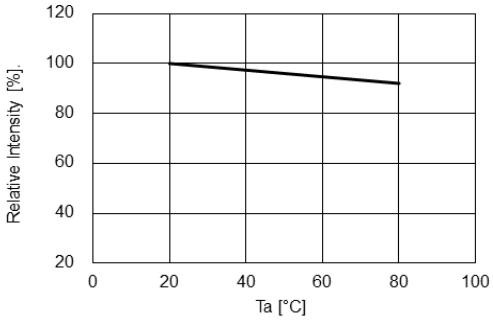


Fig.4 – Forward Voltage (@250mA) vs. Ambient Temperature

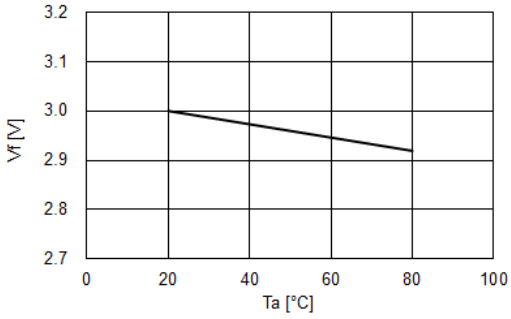


Fig.5 – Dominant Wavelength (@250mA) vs. Ambient Temperature

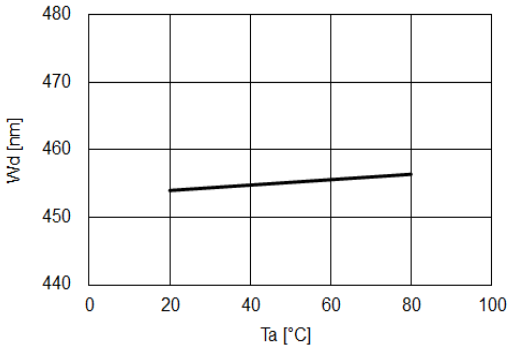
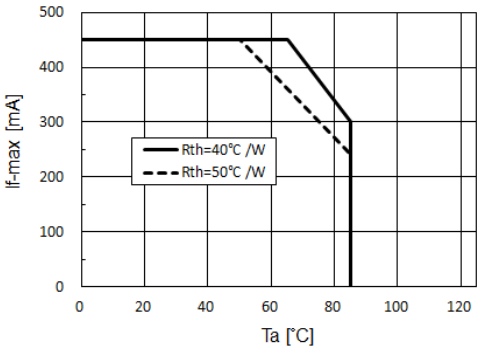


Fig.6 – Maximum Driving Forward DC Current vs. Ambient Temperature (De-rating based on Tj max. = 125°C)



> Qualification:

[1] EPISTAR's LED chips and epi-wafers are designed and manufactured according to the quality management system that complies to the IATF 16949:2016 requirements (IATF No: 0325277 / Certificate Registration No: 20000910 IATF16).

[2] The chip qualification test plan is based on the guidelines of AEC-Q101-REV-D, Failure Mechanism Based Stress Test Qualification for Discrete Semiconductors in Automotive Applications.

> Revision:

Version	Page	Subjects	Date of Modification
A	3	Initial Release	January 24, 2018
B	3		October 23, 2018
C	3	Change forward current (350mA change 250mA) Change power grade (M-grade change A-grade)	December 12, 2018
D	3	Change forward current (250mA change 350mA) Change power grade (A-grade change M-grade)	April 24, 2019