

**Features**

- Negative temperature coefficient capability to protect the LED at high temperature
- Excellent current regulation ability during whole temperature range(-40°C to +150°C)
- High Reliability
- High dynamic impedance



eSGA(SOD-123FL)

**Description**

Current regulating diode GCR501 supplies constant current to an electric circuit, even when power supply voltage fluctuations or load impedance fluctuations occur. The GCR501 is used for current stabilization and current limiting.



Schematic Diagram

**Absolute Maximum Ratings**

(T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	500	mW
Max. Work Voltage	V <sub>MAX</sub>	100	V
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-40 to +150	°C
Typical Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	250	°C/W

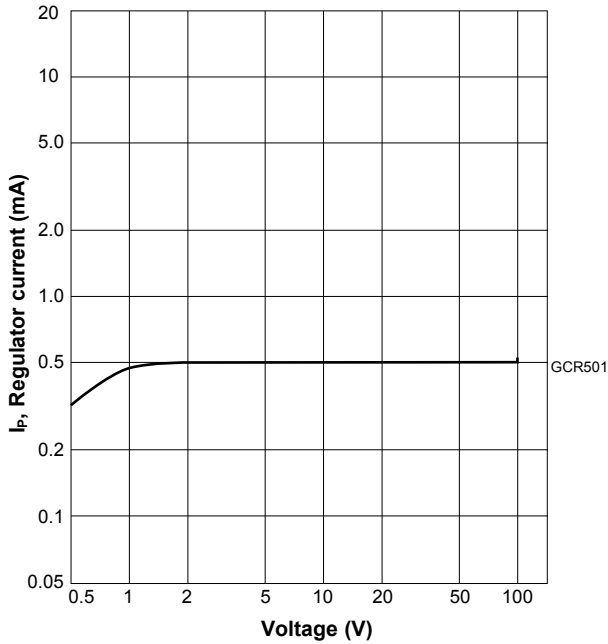
**Electrical Characteristics**

(T<sub>A</sub>=25°C unless otherwise specified)

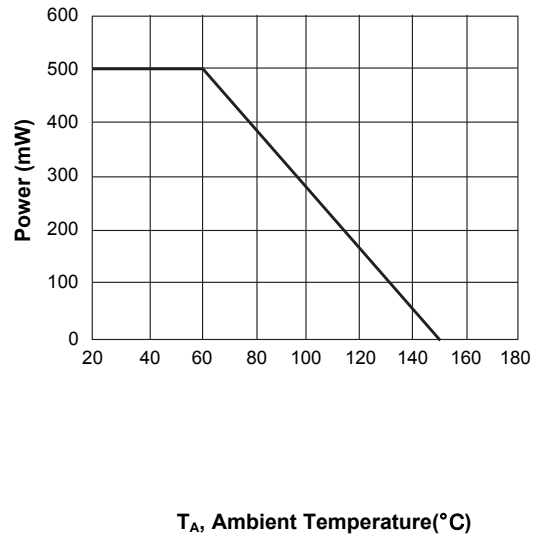
P/N	Marking Code	Regulator Current I <sub>P</sub> @ V <sub>T</sub> = 10V			Knee Current		Limiting Current Ratio	Temperature Coefficient
		Min	Nom	Max	@V <sub>K</sub>	I <sub>K</sub>	I <sub>100V</sub> / I <sub>P</sub>	25°C to 50°C
		mA	mA	mA	(V)		I <sub>30V</sub> / I <sub>P</sub>	%/°C
GCR501	501	0.40	0.50	0.63	1.1	min 0.8I <sub>P</sub>	max 1.1 (I <sub>100V</sub> / I <sub>P</sub> )	+0.15 to -0.25

**Typical Characteristic Curves**

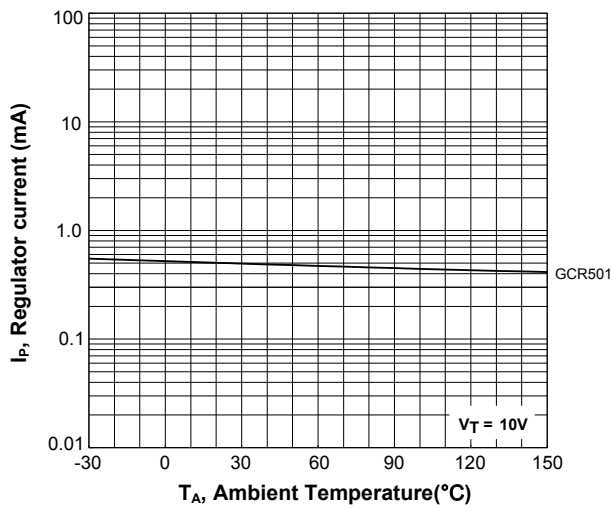
eSGA(SOD-123FL)



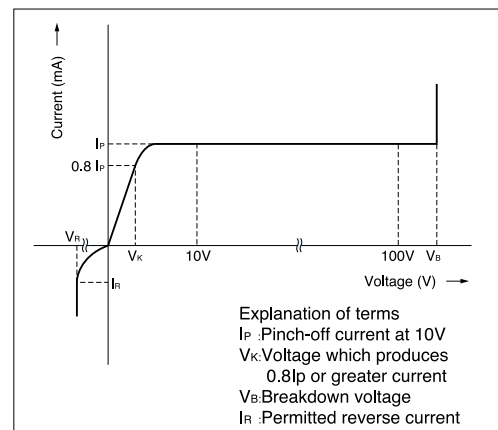
**Fig.1 Regulator Voltage vs Current**



**Fig.2 Power Derating Curve**



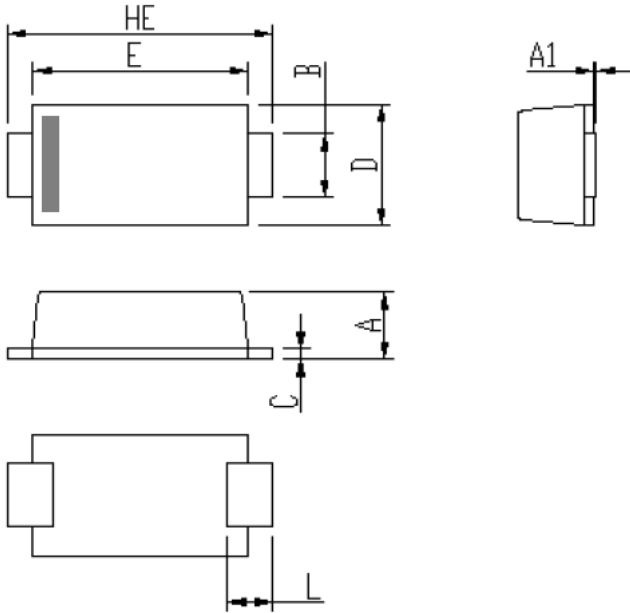
**Fig.3 Nominal Regulator Current vs Temperature**



**Fig.4 Basic Characteristics**

**Product Dimensions**

**eSGA(SOD-123FL)**



DIM	Unit: mm		Unit: inch	
	MIN	MAX	MIN	MAX
A	0.9	1.08	0.035	0.043
A1	0	0.1	0	0.004
B	0.85	1.05	0.033	0.041
C	0.1	0.25	0.004	0.01
D	1.7	2	0.067	0.079
E	2.9	3.1	0.114	0.122
L	0.43	0.83	0.017	0.033
HE	3.5	3.9	0.138	0.154

**Order Information**

Device	Package	Marking Code	Carrier	Quantity	HSF Status
GCR501	eSGA (SOD-123FL)	501	Tape & Reel	3000pcs / Reel	RoHS Compliant