




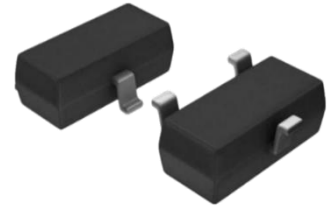
SPECIFICATION SHEET NO.	S0220- S9013L0000S0J3	
ORIGINAL MFG/PART NO.	LGE Diodes/S9013-L	
NEXTGEN PART CODE	S9013L0000S0J3	Indicate This Code For RFQ /Order
DATE	Feb. 20, 2025	
REVISION	A1	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	<p>SMD Plastic-Encapsulate Transistors, 3 Pads, Case SOT-23</p> <p>S9 Series, Transistor Type NPN</p> <p>Collector-base Breakdown Voltage: 40V Min.</p> <p>Collector-Emitter Voltage: 25V Min..</p> <p>Operating Temp. Range -55°C ~+150°C</p> <p>Package in Tape/Reel, 3000pcs/7" Reel</p> <p>REACH/RoHS/RoHS III/ Compliant and Halogen Free (HF)</p>	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

VENDOR APPROVE			
Issued/Checked/Approved			
Effective Date: Feb. 20 2025			

CUSTOMER APPROVE
Date:

MAIN FEATURE

- Epoxy Meets UL-94 V-0 Flammability Rating
- Epitaxial Planar Die Construction
- High Collector Current
- Excellent HFE Linearity
- Power Dissipation ($P_c=300\text{mW}$)
- Complementary PNP Type Available (Part Code: S9012L0000S2T1)
- Surface Mount Package Ideally Suited for Automatic Insertion
- Short Lead time
- Cross Competitors Parts and More.
- REACH/RoHS/RoHS III/ Compliant and Halogen Free (HF)



*Image shown is a representation only.
Exact specifications should be obtained
from the product dimension.*



APPLICATION

- General Purpose Application, High Collector Current Application.

ELECTRICAL CHARACTERISTICS

- See Page 5 ~Page 6
- All Parameters are Subject To NextGen Components' Final Confirmation

HOW TO ORDER

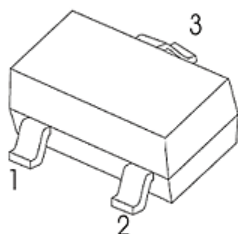
- Please Follow Up Part Code Guide And Indicate NextGen Part Code S9013L0000S0J3 For RFQ and Order.

PART CODE GUIDE

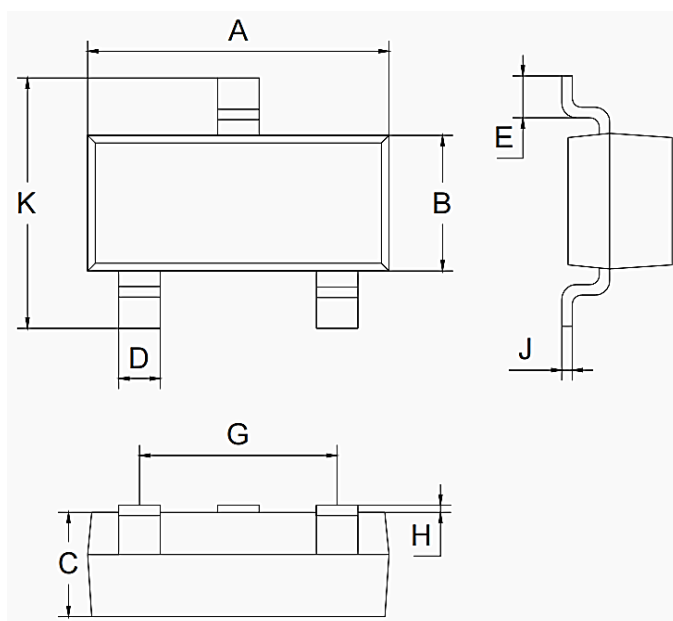
RFQ
[Request For Quotation](#)

CODE	NAME	KEY SPECIFICATION OPTION
S9	Product Series Code	SMD Plastic- Encapsulate Transistors, 3 Pads, Case SOT-23, S9 series
013	Mode code	013: Complementary NPN Type; 012: Complementary PNP Type
L0000S	Internal Control Code	Letter or Digits (A~Z, a~z or 1~9)
0J3	Marking Code	0J3: Letter or Digits (A~Z, a~z or 1~9) for Marking "J3"
XX	Special/Custom Parameters Code	Letter or Digits (A~Z, a~z or 1~9) for Special Parametric Blank: N/A

DIMENSION- Unit: mm, Case SOT-23 Outline



- 1. Base
- 2. Emitter
- 3. Collector



SYMBOL	VALUE (MM)		
	MIN.	TYP.	MAX.
A	2.7	-	3.1
B	1.1	-	1.5
C	-	1.0	-
D	-	0.4	-
E	0.35	-	0.48
G	1.8		2.0
H	0.02		0.1
J	-	0.1	-
K	2.2	-	2.6

MAX. RATING & CHARACTERISTICS - at 25°C Ambient Temperature Unless Otherwise Specified.

PARAMETER	SYMBOLS	VALUE	UNITS
Collector-Base Voltage	VCBO	40	Volts
Collector-Emitter Voltage	VCEO	25	Volts
Emitter-Base Voltage	VEBO	5	Volts
Collector Current –Continuous	IC	500	mA
Collector Power Dissipation	PC	300	mW
Junction & Storage Temperature Range	TJ, TSTG	-55 ~ +150	°C

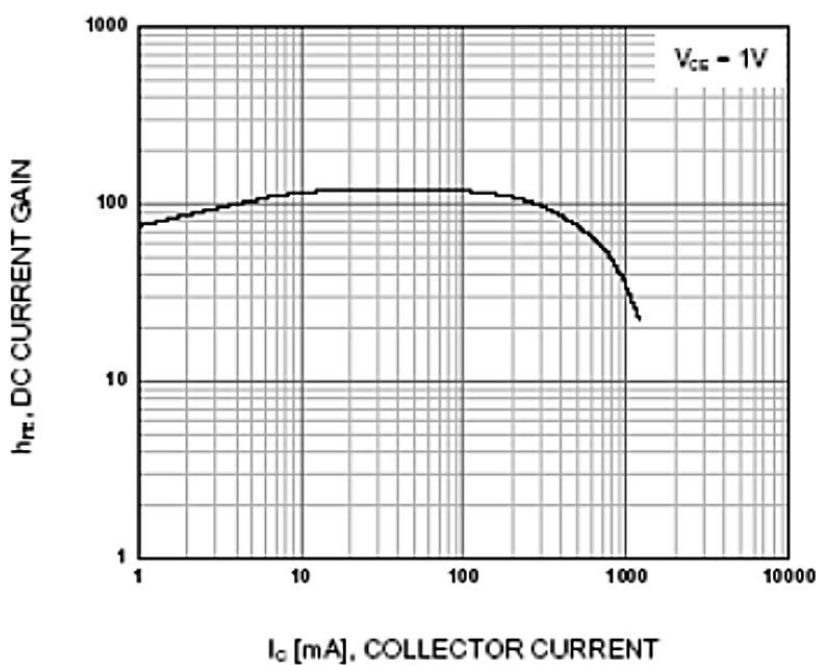
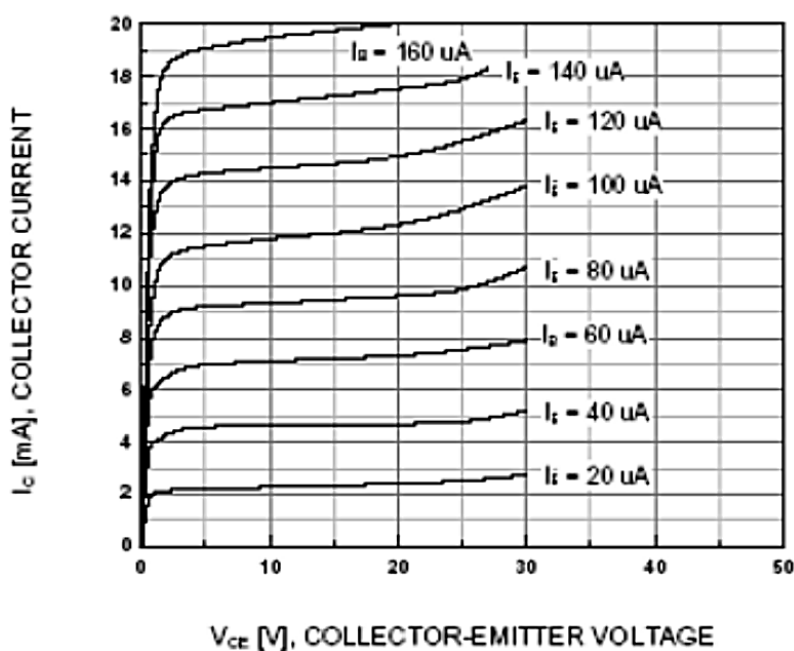
ELECTRICAL CHARACTERISTICS - at 25°C Ambient Temperature Unless Otherwise Specified.

PARAMETER	SYMBOLS	VALUE			UNIT	TEST CONDITION
		MIN.	TYP.	MAX.		
Collector-base Breakdown Voltage	V(BR)CBO	40			V	I _C = 100μA, I _E =0
Collector-emitter Breakdown Voltage	V(BR)CEO	25			V	I _C = 0.1mA, I _B =0
Emitter-base Breakdown Voltage	V(BR)EBO	5			V	I _E = 100μA, I _C =0
Collector Cut-off Current	I _{CBO}			0.1	μA	V _{CB} = 40V, I _E = 0
Collector Cut-off Current	I _{CEO}			0.1	μA	V _{CB} = 20V, I _B = 0
Emitter Cut-off Current	I _{EBO}			0.1	μA	V _{CB} = 5V, I _C = 0
DC Current Gain	h _{FE} (1)	120			400	V _{CE} =1V, I _C =50mA
	h _{FE} (2)	40				V _{CE} =1V, I _C =500mA
Collector-emitter Saturation Voltage	V _{CE} (sat)			0.6	V	I _C =500mA, I _B =50mA
Base-emitter Saturation Voltage	V _{BE} (sat)			1.2	V	I _C =500mA, I _B =50mA
Transition Frequency	f _T	150			MHz	V _{CE} =6V, I _C = 20mA, f=30MHz

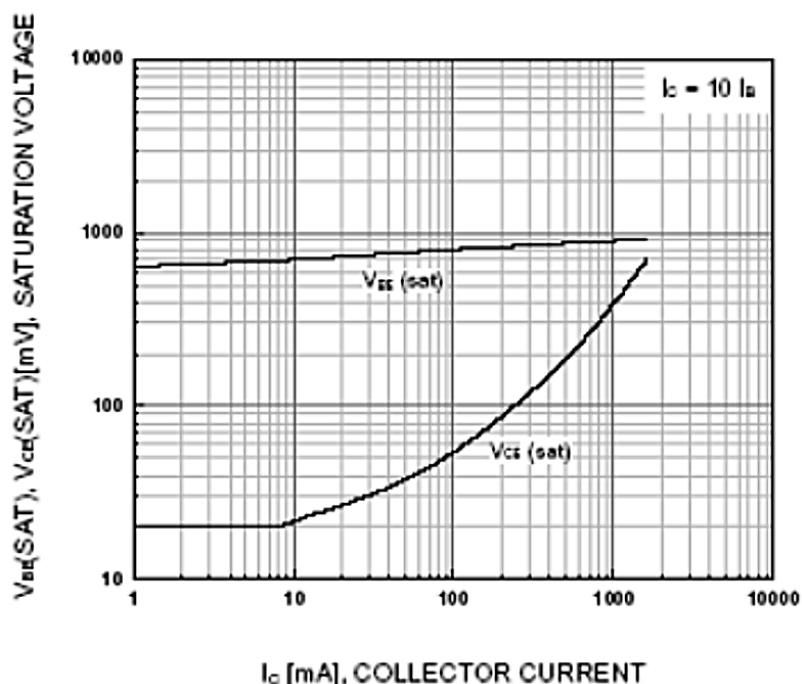
CLASSIFICATION OF H_{FE}(1)

RANK	L	H	J
RANGE	120~200	200~350	300~400

TYPICAL CHARACTERISTICS – For Reference, at 25°C Ambient Temperature Unless Otherwise Specified.



TYPICAL CHARACTERISTICS – For Reference, at 25°C Ambient Temperature Unless Otherwise Specified.



**Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage**

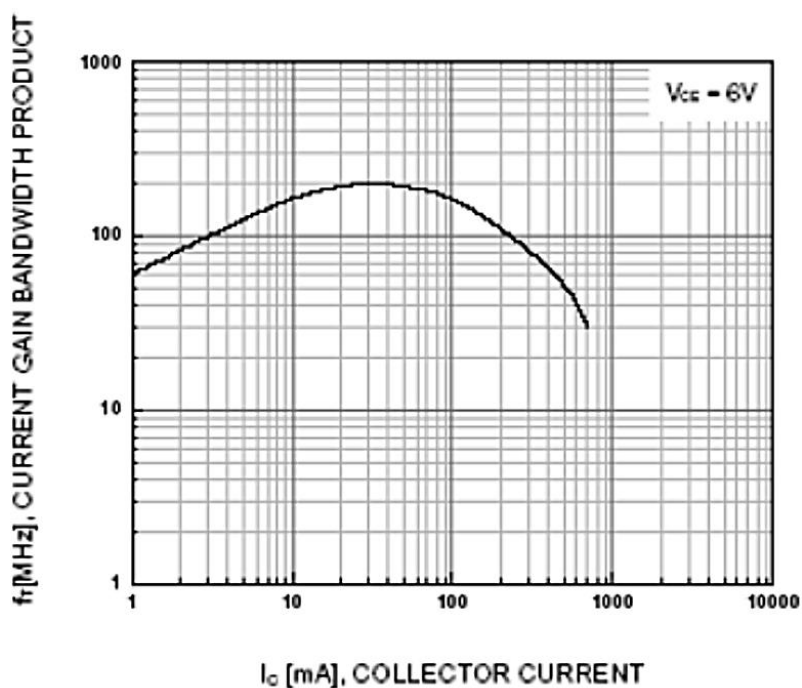
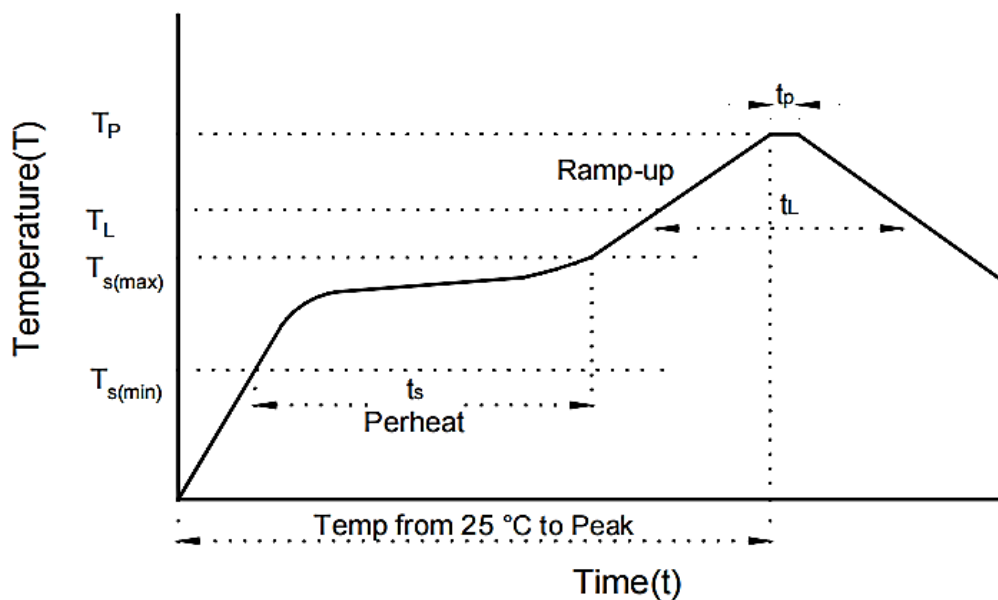


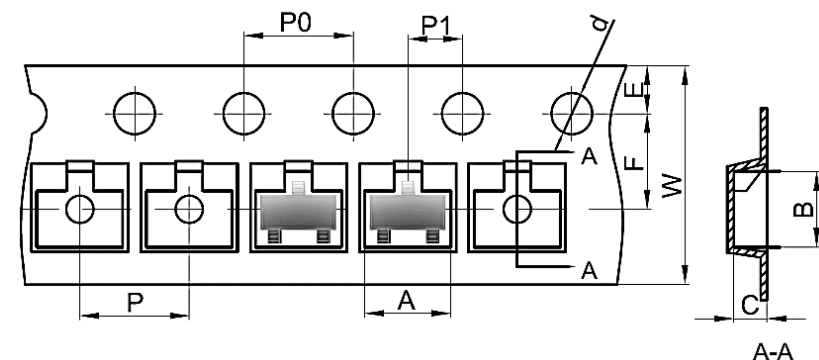
Figure 4. Current Gain Bandwidth Product

RECOMMENDED SOLDERING PARAMETERS – FOR ONLY REFERENCE


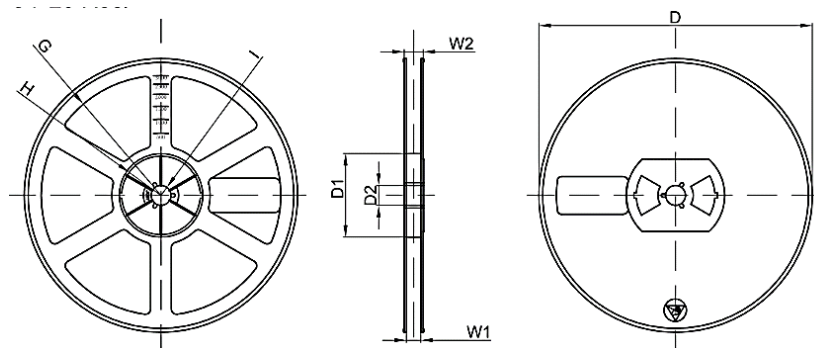
PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (Ts Max to Tp)		3°C/second Max
Preheat	Temperature Min (Ts Min.)	150°C
	Temperature Max (Ts Max.)	200°C
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	Temperature (TL)	217°C
	Time (tL)	60 ~ 150 seconds
Peak/Classification Temperature (Tp)		260 °C
Time within 5°C of actual Peak Temperature (tp)		20 ~ 40 seconds
Ramp-down Rate		6 °C /Second Max.
Time 25 °C to Peak Temperature		8 Minutes Max.
Suggest reflow times		3 Times Max.

TAPE/REEL - Unit: mm

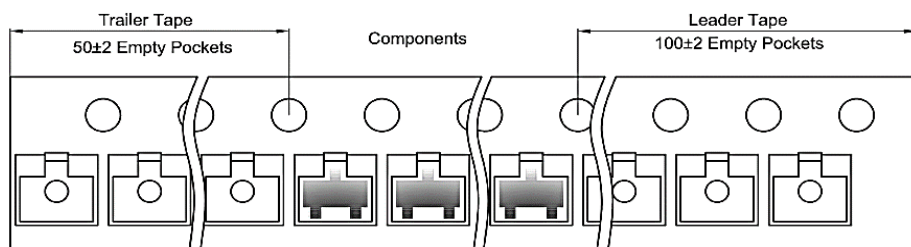
All Devices are packed in accordance with EIA standard RS-481-A and specifications. SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).



SYMBOL	DIMENSION (MM)
A	3.15±0.1
B	2.77±0.1
C	1.22±0.1
d	φ1.50±0.1
E	1.75±0.1
F	3.50±0.1
P0	4.00±0.1
P	4.00±0.1
P1	2.00±0.1
W	8.00±0.1
D	φ178±2
D1	54.4±1
D2	13.0±1
G	R78±1
H	R25.6±1
I	R6.5±1
W1	9.5±1
W2	12.3±1



TAPE LEADER AND TRAILER



IMPORTANT NOTES AND DISCLAIMER

1. **ROHS COMPLIANCE:** The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained at Download Center.
2. **REACH COMPLIANCE:** REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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8. *NextGen* requires that customers first obtain an RMA (Returned Merchandise Authorization) number prior to returning any products. Returns must be made within 30 days of the date of invoice, be in the original packaging, unused and like-new condition. At the time of quoting or purchasing, a product may say that it is Non-Cancelable/ Non-Returnable (NCNR). These products are not returnable and not refundable.