

## General Purpose Transistors

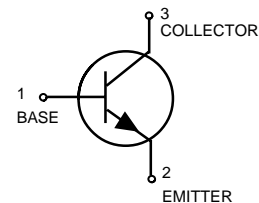
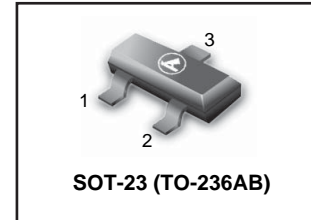
### NPN Silicon FEATURE

We declare that the material of product compliance with RoHS requirements.  
S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

## L9013PLT1G Series S-L9013PLT1G Series

### DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
L9013PLT1G S-L9013PLT1G	13P	3000/Tape&Reel
L9013PLT3G S-L9013PLT3G	13P	10000/Tape&Reel
L9013QLT1G S-L9013QLT1G	13Q	3000/Tape&Reel
L9013QLT3G S-L9013QLT3G	13Q	10000/Tape&Reel
L9013RLT1G S-L9013RLT1G	13R	3000/Tape&Reel
L9013RLT3G S-L9013RLT3G	13R	10000/Tape&Reel
L9013SLT1G S-L9013SLT1G	13S	3000/Tape&Reel
L9013SLT3G S-L9013SLT3G	13S	10000/Tape&Reel



### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	20	V
Collector-Base Voltage	$V_{CBO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector current-continuoun	$I_C$	500	mAdc

### THERMAL CHARATEERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (1) $T_A=25^{\circ}\text{C}$	$P_D$	225	mW
Derate above $25^{\circ}\text{C}$		1.8	mW/ $^{\circ}\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^{\circ}\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (2) $T_A=25^{\circ}\text{C}$	$P_D$	300	mW
Derate above $25^{\circ}\text{C}$		2.4	mW/ $^{\circ}\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^{\circ}\text{C}/\text{W}$
Junction and Storage Temperature	$T_j, T_{stg}$	-55 to +150	$^{\circ}\text{C}$

1. FR-5 = 1.0 x 0.75 x 0.062 in.

2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

### ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ( $I_C=1.0\text{mA}$ )	$V_{(BR)CEO}$	20	-	-	V
Emitter-Base Breakdown Voltage ( $I_E=100\mu\text{A}$ )	$V_{(BR)EBO}$	5	-	-	V
Collector-Base Breakdown Voltage ( $I_C=100\mu\text{A}$ )	$V_{(BR)CBO}$	40	-	-	V
Collector Cutoff Current ( $V_{CB}=35\text{V}$ )	$I_{CBO}$	-	-	150	nA
Emitter Cutoff Current ( $V_{EB}=4\text{V}$ )	$I_{EBO}$			150	nA

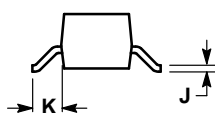
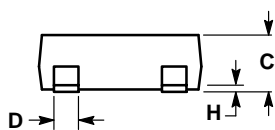
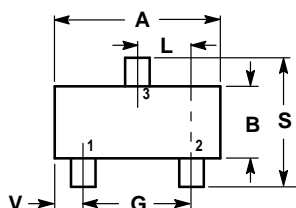
**ON CHARACTERISTICS**

DC Current Gain ( $I_c=50mA, V_{CE}=1V$ )	$H_{fe}$	100	-	600	
Collector-Emitter Saturation Voltage ( $I_c=500mA, I_b=50mA$ )	$V_{CE(S)}$	-	-	0.6	V

NOTE:

*	P	Q	R	S
$H_{FE}$	100~200	150~300	200~400	300~600

**SOT-23 (TO-236AB)**



NOTES:

- CONTROLLING DIMENSION: MILLIMETERS
- LEAD THICKNESS SPECIFIED PER L / F DRAWING WITH SOLDER PLATING.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0180	0.0236	0.45	0.60
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.0984	2.10	2.50
V	0.0177	0.0236	0.45	0.60

- PIN 1. BASE
- EMITTER
- COLLECTOR

