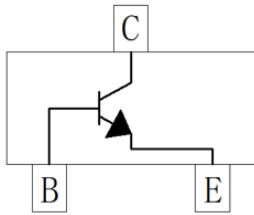


NPN General Purpose Amplifier



SOT-23

Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- Part no. with suffix "Q" means AEC-Q101 qualified

Applications

- Linear amplification

Mechanical Data

- **Case:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** J3

■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Value
Collector-Base Voltage	V_{CBO}	V		40
Collector-Emitter Voltage	V_{CEO}	V		25
Emitter-Base Voltage	V_{EBO}	V		5
Collector Current -Continuous	I_C	mA		500
Total Device Dissipation	P_D	mW		300
Maximum Junction Temperature	T_j	°C		150
Storage Temperature	T_{STG}	°C		-55 to +150

■ Electrical Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C=100\mu A, I_E=0$	40	
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=1mA, I_B=0$	25	
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=100\mu A, I_C=0$	5	
Collector cut-off current	I_{CBO}	nA	$V_{CB}=40V, I_E=0$		100
Collector cut-off current	I_{CEO}	nA	$V_{CE}=20V, I_B=0$		100
Emitter cut-off current	I_{EBO}	nA	$V_{EB}=5V, I_C=0$		100
DC current gain	$h_{FE(1)}$		$V_{CE}=1.0V, I_C=50mA$	120	400
	$h_{FE(2)}$		$V_{CE}=1.0V, I_C=500mA$	40	
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=500mA, I_B=50mA$		0.6
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=500mA, I_B=50mA$		1.2



S9013-LQ & S9013-HQ & S9013-JQ

Small-signal Characteristics

Item	Symbol	Unit	Conditions	Min	Max
Transition frequency	f_T	MHz	$V_{CE}=6V_{dc}, I_C=20mA, f=30MHz$	150	

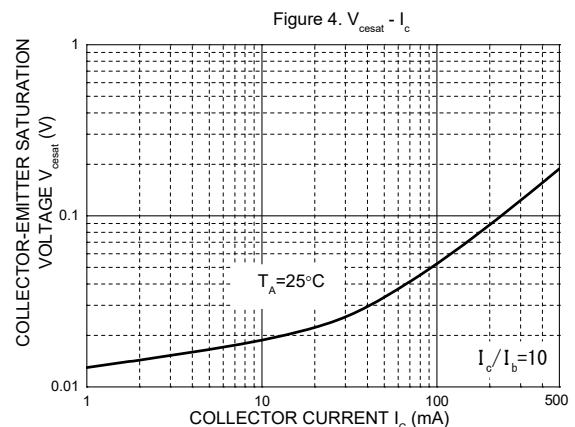
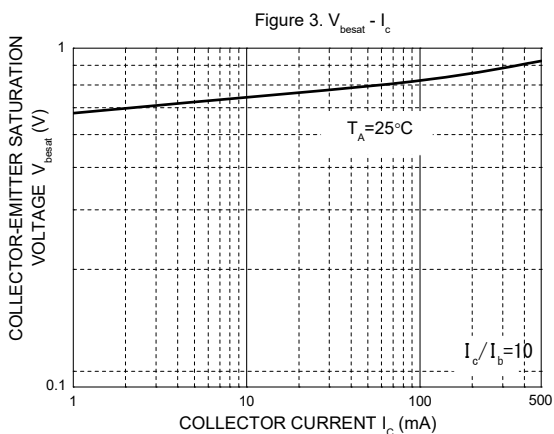
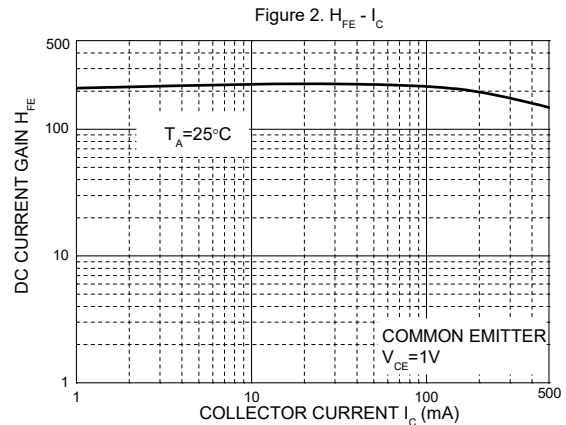
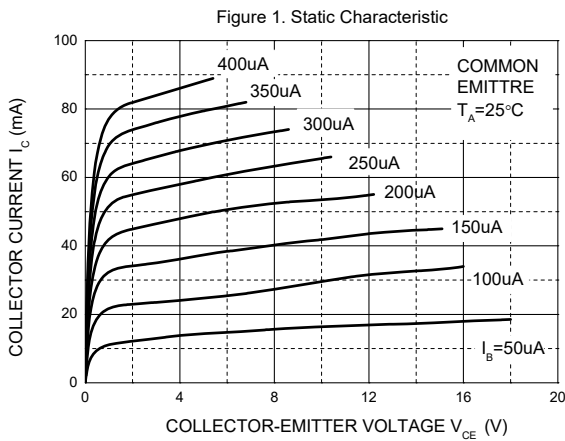
Classification Of h_{FE} (1)

Rank	L	H	J
Range	120-200	200-350	300-400

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
S9013-LQ & S9013-HQ & S9013-JQ	F2	Approximate 0.01	3000	30000	120000	7" reel

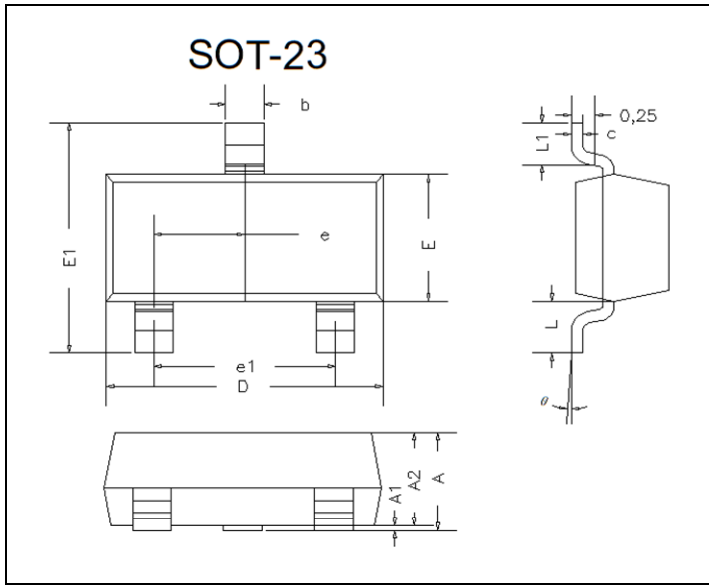
Characteristics (Typical)





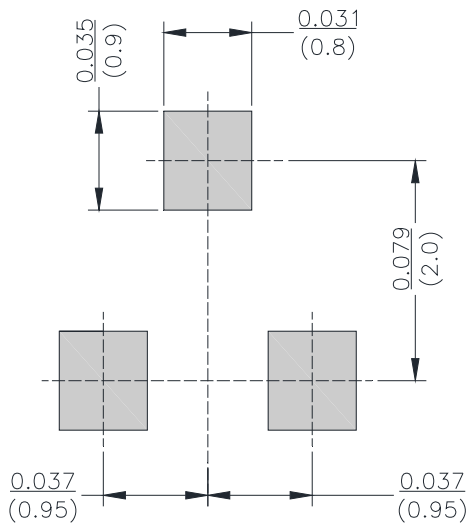
S9013-LQ & S9013-HQ & S9013-JQ

■SOT-23 Package Outline Dimensions



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.035	0.045	0.90	1.15	
A1	0.000	0.004	0.00	0.10	
A2	0.035	0.041	0.90	1.05	
b	0.012	0.020	0.30	0.50	
c	0.004	0.008	0.10	0.20	
D	0.110	0.118	2.80	3.00	
E	0.047	0.055	1.20	1.40	
E1	0.089	0.100	2.25	2.55	
e	0.370TYP		0.95TYP		
e1	0.071	0.079	1.80	2.00	
L	0.220REF		0.55REF		
L1	0.012	0.020	0.30	0.50	
θ	0°	8°	0°	8°	

■SOT-23 Suggested Pad Layout



Unit: $\frac{\text{inch}}{\text{mm}}$



S9013-LQ & S9013-HQ & S9013-JQ

Disclaimer

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