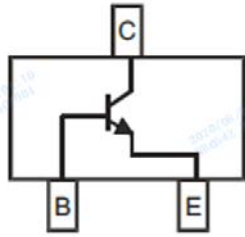


## NPN General Purpose Amplifier



**SOT-23**

### Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- High Conductance
- Low  $V_{CE(sat)}$
- Part no. with suffix "Q" means AEC-Q101 qualified

### Applications

- NPN General Purpose Amplifier

### Mechanical Data

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

### ■ Maximum Ratings ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Item	Symbol	Unit	Value
Collector-Base Voltage	$V_{CBO}$	V	80
Collector-Emitter Voltage	$V_{CEO}$	V	80
Emitter-Base Voltage	$V_{EBO}$	V	5
Collector Current -Continuous	$I_C$	mA	500
Total Device Dissipation	$P_D$	mW	200
Junction Temperature	$T_j$	$^\circ\text{C}$	-55 to +150
Storage Temperature	$T_{STG}$	$^\circ\text{C}$	-55 to +150

### ■ Electrical Characteristics ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{CBO}$	V	$I_C=50\mu\text{A}, I_E=0$	80		
Collector-emitter breakdown voltage	$V_{CEO}$	V	$I_C=2\text{mA}, I_B=0$	80		
Emitter-base breakdown voltage	$V_{EBO}$	V	$I_E=50\mu\text{A}, I_C=0$	5		
Collector-base cut-off current	$I_{CBO}$	$\mu\text{A}$	$V_{CB}=50\text{V}, I_E=0$			0.5
Emitter-base cut-off current	$I_{EBO}$	$\mu\text{A}$	$V_{EB}=4\text{V}, I_C=0$			0.5
DC current gain	$h_{FE}$		$V_{CE}=3\text{V}, I_C=100\text{mA}$	180		390
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=500\text{mA}, I_B=50\text{mA}$			0.5
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=500\text{mA}, I_B=50\text{mA}$			1.2



### Other Characteristics (Ta=25°C unless otherwise noted)

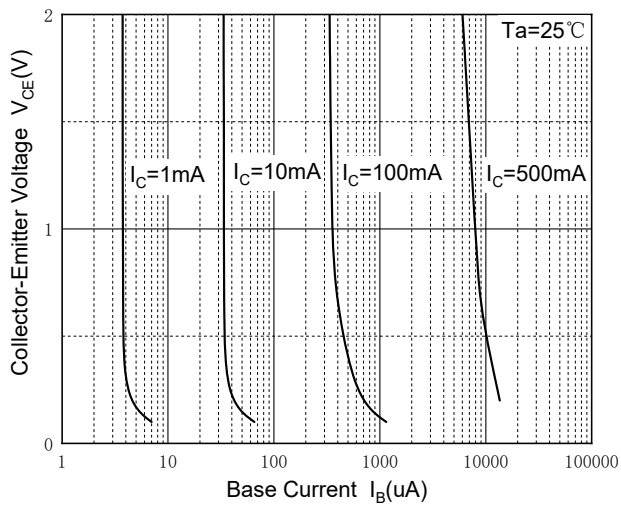
Item	Symbol	Unit	Conditions	Min	Typ	Max
Transition frequency	$f_T$	MHz	$V_{CE}=10V, I_C=50mA, f=100MHz$		180	

### Ordering Information (Example)

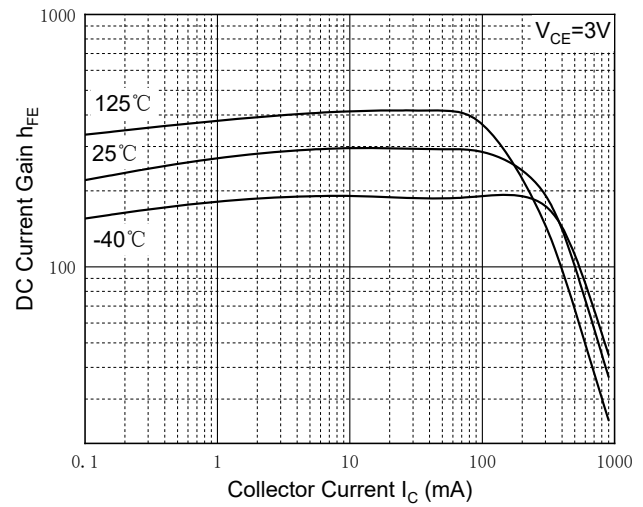
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
2SD1782-RQ	F2	Approximate 0.01	3000	30000	120000	7" reel

### Characteristics(Typical)

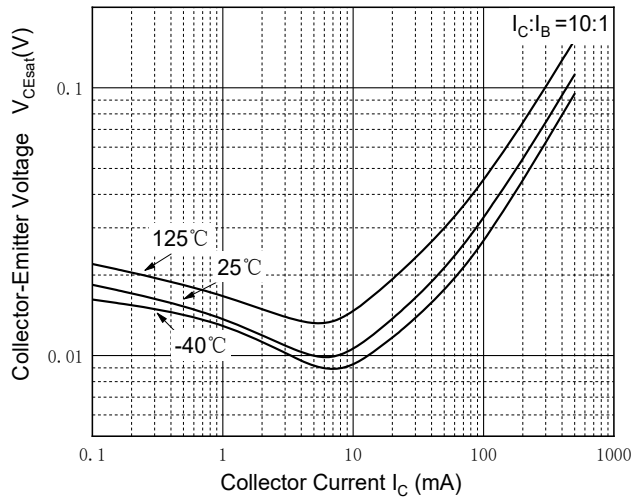
Static Characteristic



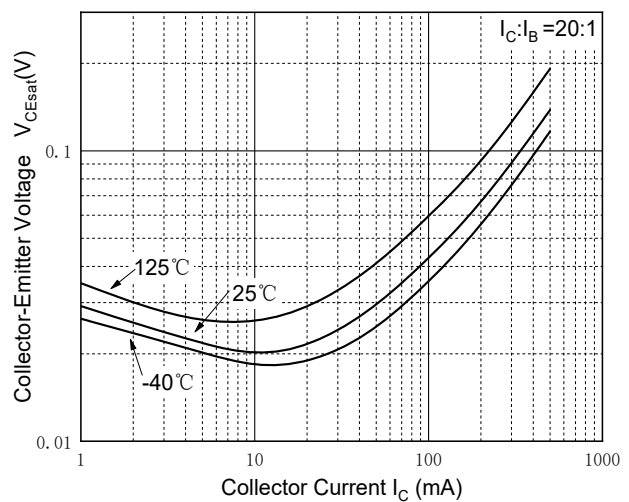
DC Current Gain

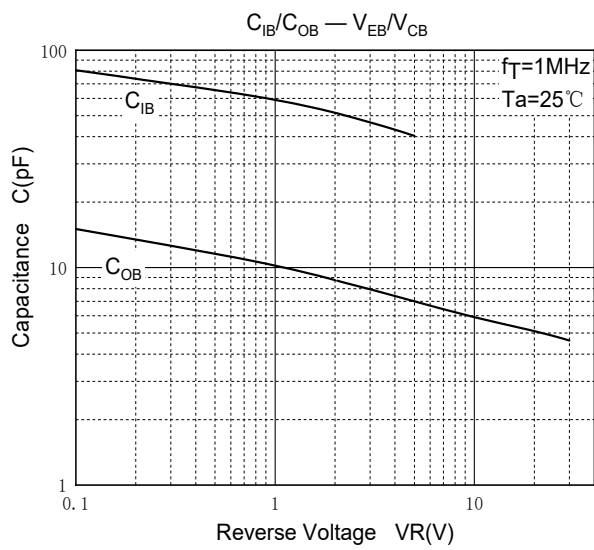
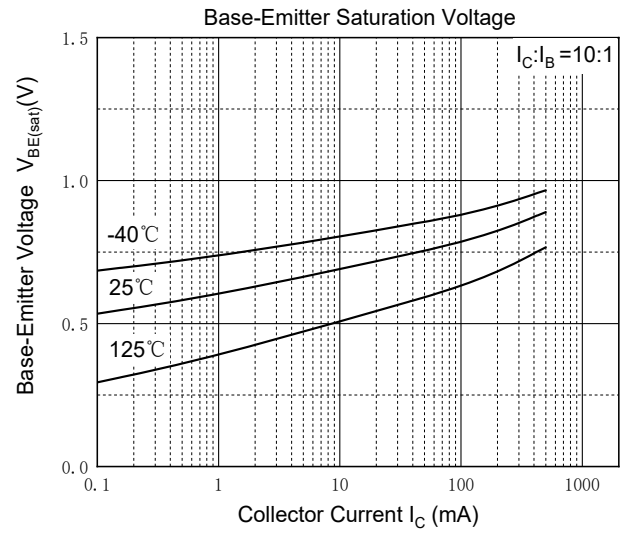
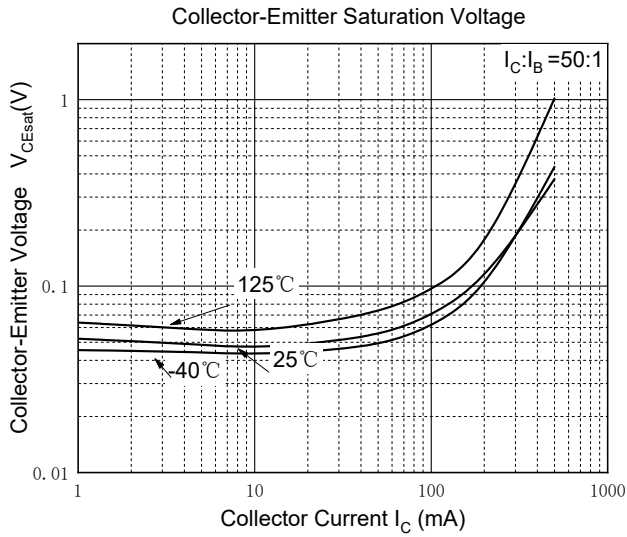


Collector-Emitter Saturation Voltage

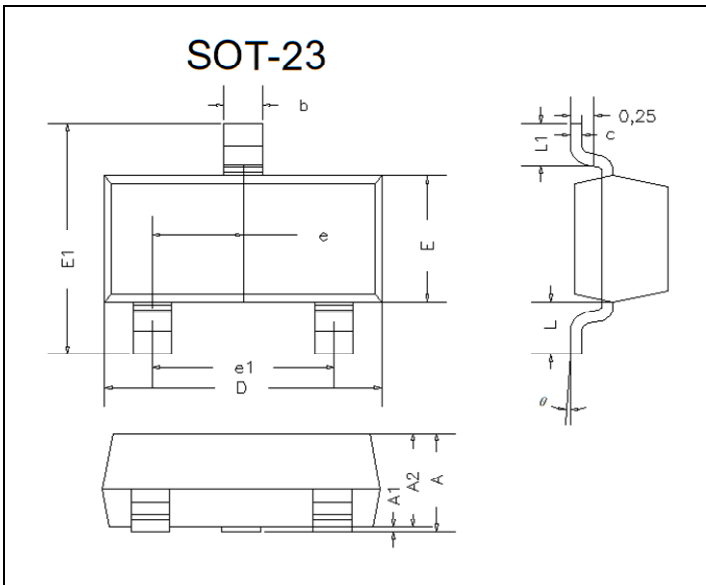


Collector-Emitter Saturation Voltage



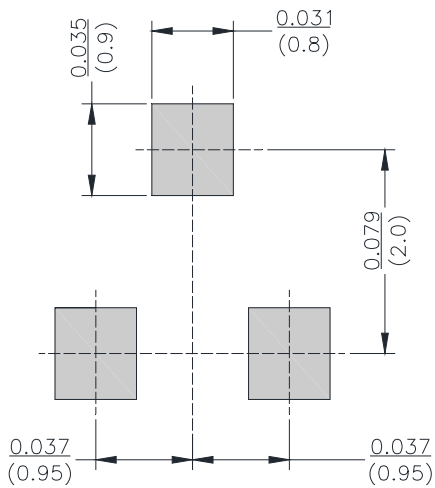


## ■ SOT-23 Package Outline Dimensions



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	
$\theta$	0°	8°	0°	8°	

## ■ SOT-23 Suggested Pad Layout



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



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