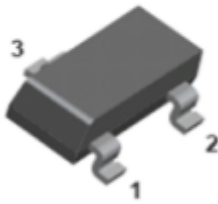
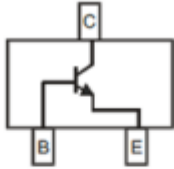


## NPN General Purpose Amplifier



**SOT-23**

### Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

### Application

- Signal amplification
- Switching circuit

### Mechanical data

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

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

Item	Symbol	Unit	Conditions	Value
Device marking code				R25
Collector-base voltage	$V_{CB0}$	V	$I_C=100\mu\text{A}, I_E=0$	20
Collector-emitter voltage	$V_{CE0}$	V	$I_C=1\text{mA}, I_B=0$	12
Emitter-base voltage	$V_{EB0}$	V	$I_E=100\mu\text{A}, I_C=0$	3
Collector current	$I_C$	A		0.1
Power 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 specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C=100\mu\text{A}, I_E=0$	20		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=1\text{mA}, I_B=0$	12		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=100\mu\text{A}, I_C=0$	3		
Collector-base cut-off current	$I_{CBO}$	$\mu\text{A}$	$V_{CB}=10\text{V}$			1
Emitter-base cut-off current	$I_{EBO}$	$\mu\text{A}$	$V_{EB}=1\text{V}$			1
DC current gain	$h_{FE}$		$V_{CE}=10\text{V}, I_C=20\text{mA}$	125		250
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=50\text{mA}, I_B=5\text{mA}$			0.3
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=50\text{mA}, I_B=5\text{mA}$			1.15
Transition frequency	$f_T$	GHz	$V_{CE}=10\text{V}, I_C=20\text{mA}$		7	
Collector-base output capacitance	$C_{ob}$	pF	$V_{CB}=10\text{V}, I_E=0\text{A}, f=1\text{MHz}$			1

■ **Thermal Characteristics**

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(1)}$	$^\circ\text{C/W}$	625
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	$^\circ\text{C/W}$	500

**Note:**

(1) Device mounted on PCB, single-sided copper, with standard footprint



■ Characteristics

Fig 1: Static Characteristics

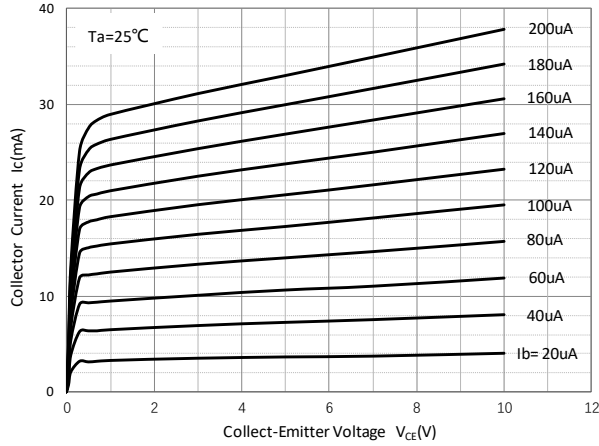


Fig 2: DC Current Gain

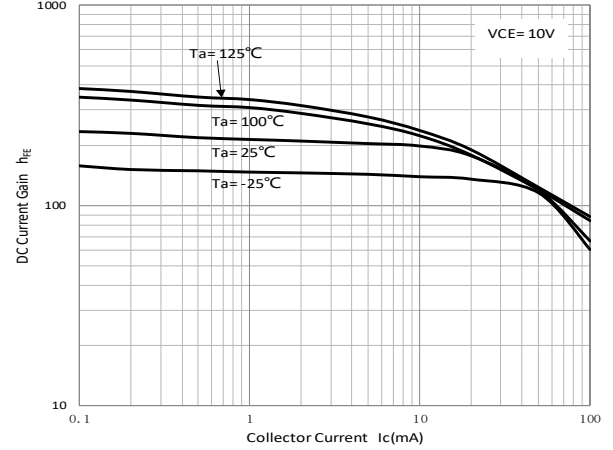


Fig 3: Collector-Emitter Saturation Voltage

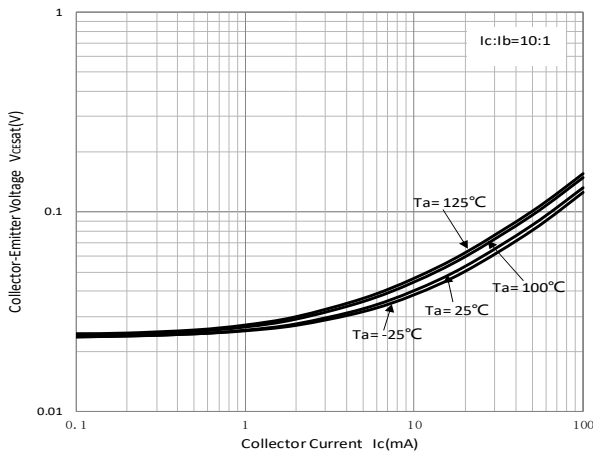


Fig 4: Base-Emitter Saturation Voltage

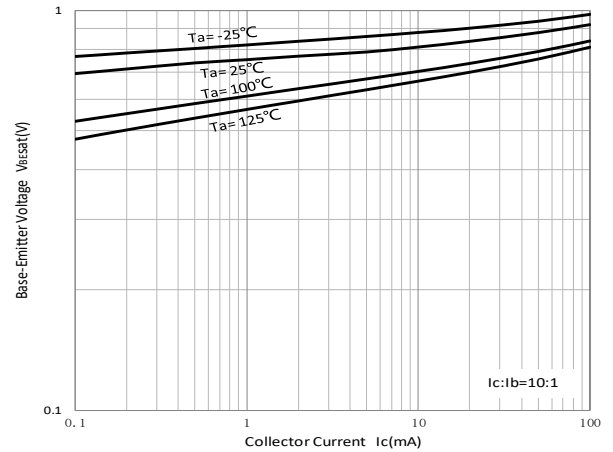


Fig 5: Base-Emitter On Voltage

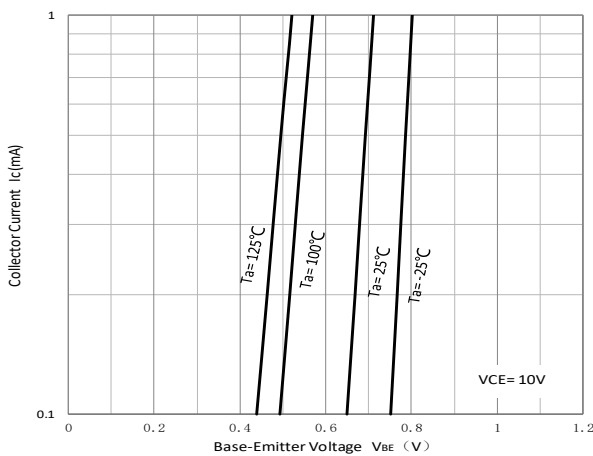
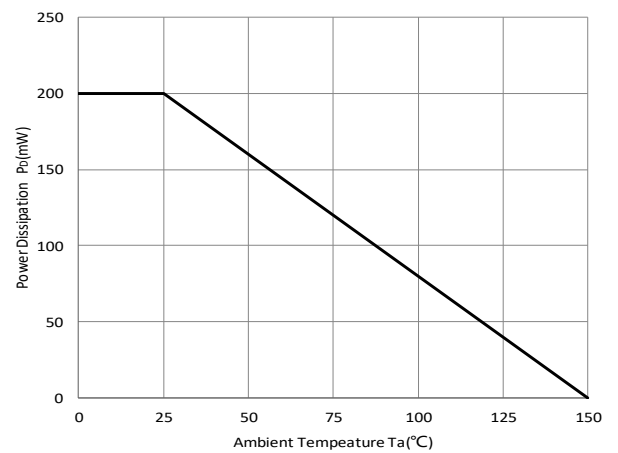


Fig 6: Pd-Ta Curve

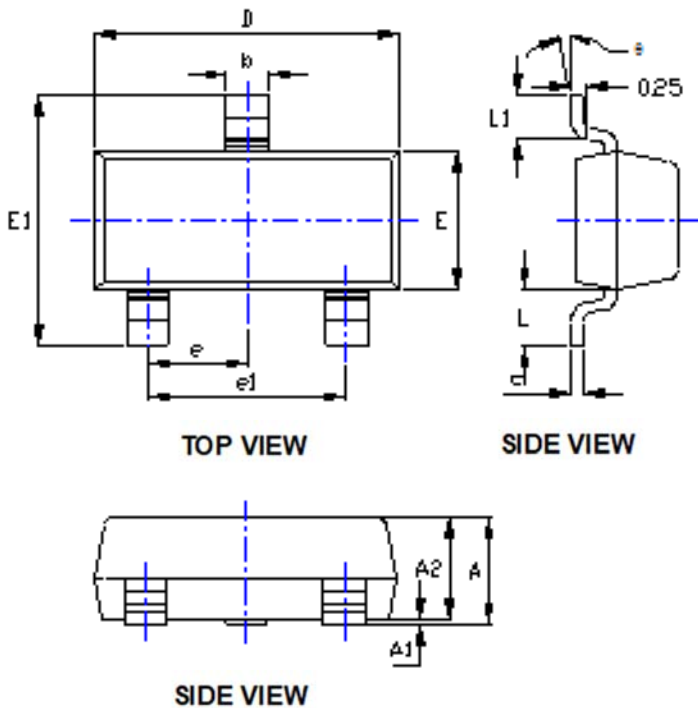




### ■ Ordering Information

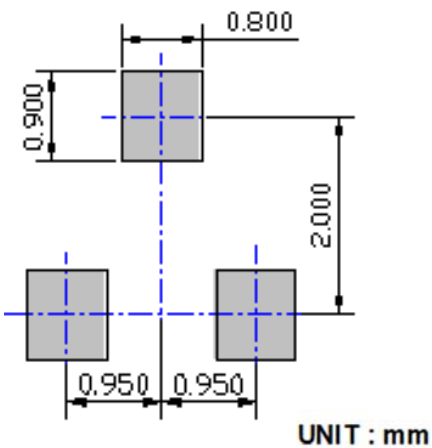
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
2SC3356	F2	Approximate 0.008	3000	30000	120000	7" reel
2SC3356	F4	Approximate 0.008	10000	/	210000	13" reel

### ■ Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

### ■ Suggested Pad Layout





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