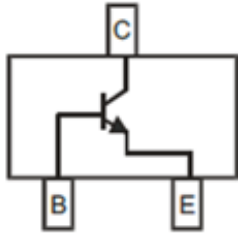


## NPN General Purpose Amplifier



**SOT-323**

### Features

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

### Applications

- Switching and linear amplification

### Mechanical Data

- **Case:** SOT-323
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** K3X

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

Item	Symbol	Unit	Value
Collector-Base Voltage	$V_{CBO}$	V	60
Collector-Emitter Voltage	$V_{CEO}$	V	40
Emitter-Base Voltage	$V_{EBO}$	V	6
Collector Current -Continuous	$I_C$	mA	600
Total Device Dissipation (*)	$P_D$	mW	200
Thermal Resistance Junction to Ambient (*)	$R_{thJA}$	K/W	625
Junction Temperature	$T_j$	°C	-55 to +150
Storage Temperature	$T_{STG}$	°C	-55 to +150

(\*) Device mounted on FR-4 PCB 1.0 x 1.0 x 0.06 inch.



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

Item	Symbol	Unit	Conditions	Min	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C=10mA, I_E=0$	60	-
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=1mA, I_B=0$	40	-
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=100\mu A, I_C=0$	6	-
Collector cut-off current	$I_{CEO}$	nA	$V_{CE}=35V, I_B=0$	-	100
Base cut-off current	$I_{CBO}$	nA	$V_{CB}=35V, I_E=0$	-	100
Emitter cut-off current	$I_{EBO}$	nA	$V_{EB}=5V, I_C=0$	-	100
DC current gain	$h_{FE}$		$V_{CE}=1V, I_C=150mA$	100	300
			$V_{CE}=2V, I_C=500mA$	40	
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=150mA, I_B=15mA$	-	0.4
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=150mA, I_B=15mA$	-	0.95
Transition frequency	$f_T$	MHz	$V_{CE}=10V, I_C=20mA, f=100MHz$	250	-
Delay time	$t_d$	ns	$V_{CC}=30V, V_{BE(off)}=0.2V$ $I_C=150mA, I_{B1}=15mA$	-	15
Rise time	$t_r$	ns		-	20
Storage time	$t_s$	ns	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	225
Fall time	$t_f$	ns		-	30

## ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMST4401Q	F2	Approximate 0.006	3000	30000	120000	7" reel

## ■ Characteristics (Typical)

Fig.1-Static Characteristic

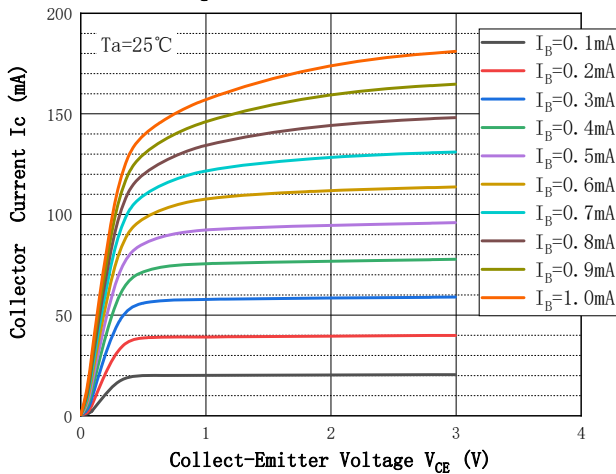


Fig.2 - DC Current Gian

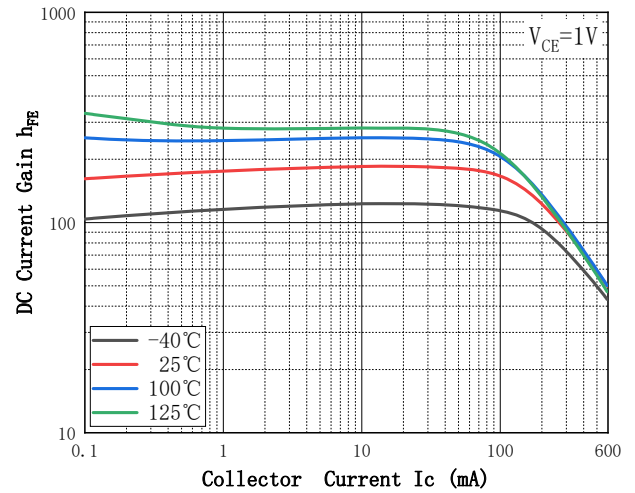


Fig.3 - Collect-Emittor Saturation Voltage

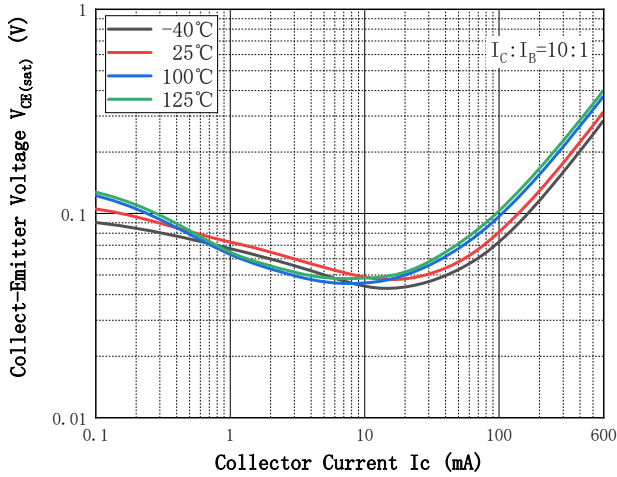


Fig.4 - Base-Emittor Voltage

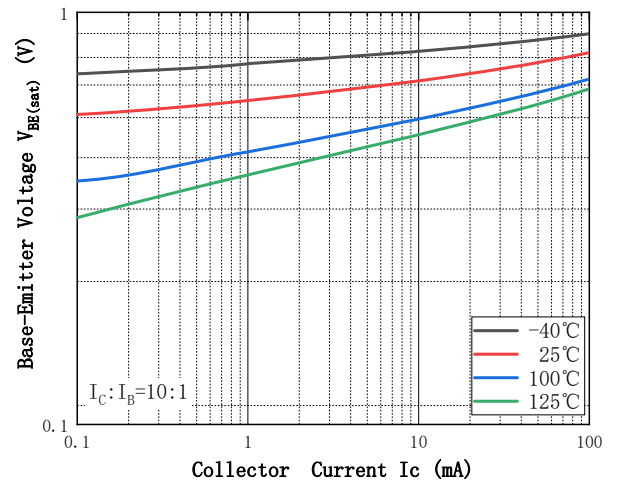


Fig.5 - Base-Emittor On Voltage

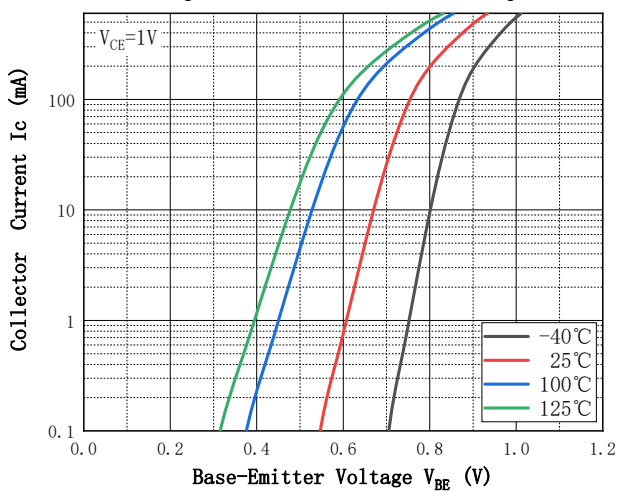


Fig.6 - Cob/Cib—Vcb/Vbe

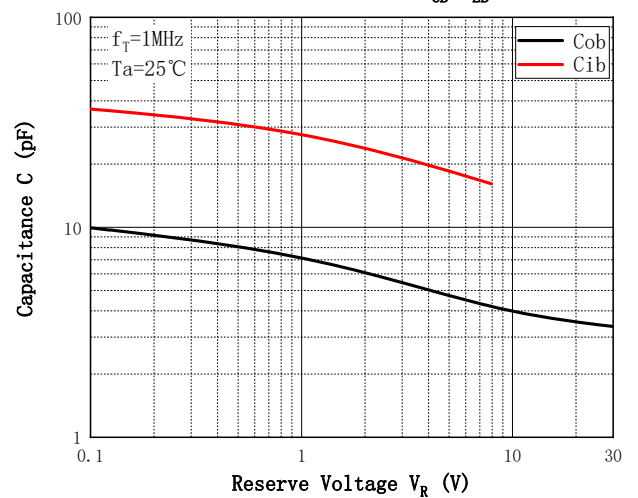
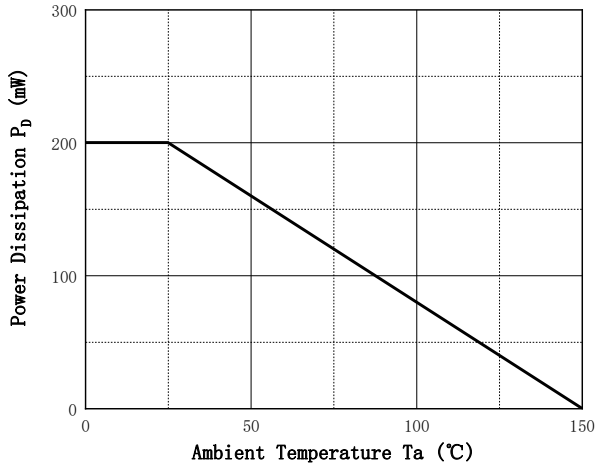
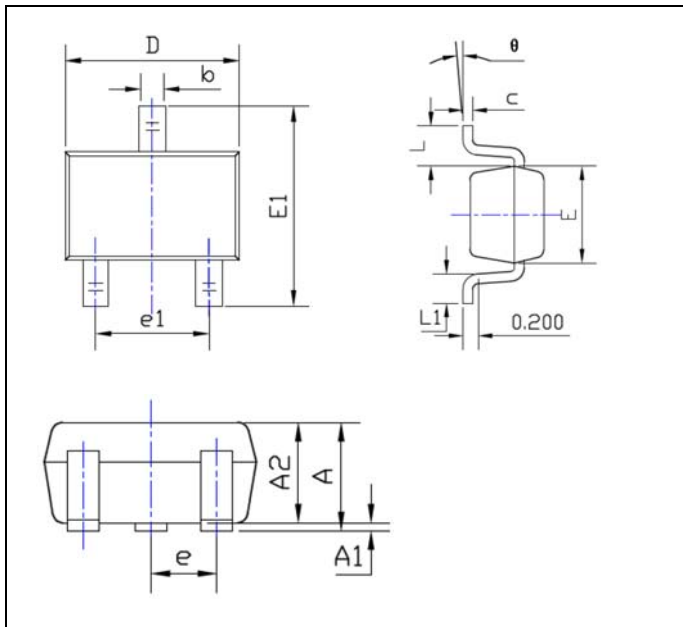


Fig. 7 - Power Derating Curve

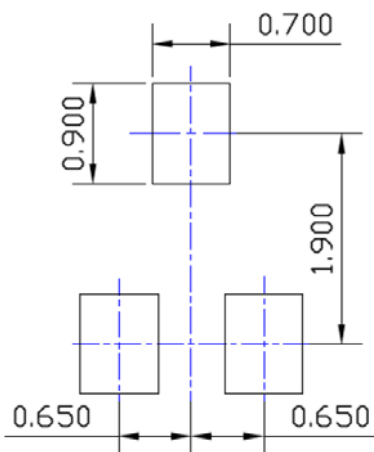


## ■ SOT-323 Package Outline Dimensions

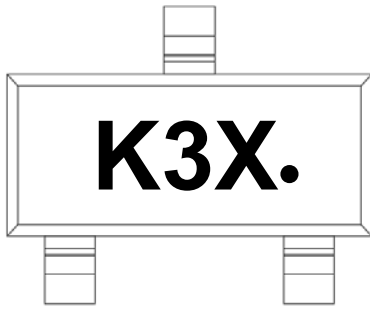


SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.016	0.150	0.400
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
$\theta$	0°	8°	0°	8°

## ■ SOT-323 Suggested Pad Layout



Unit: mm

**■ Marking Information****Note:**

1. All marking is at middle of the product body
2. All marking is in laser marking
3. K3X is Marking Code
4. Body color: Black



## Disclaimer

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