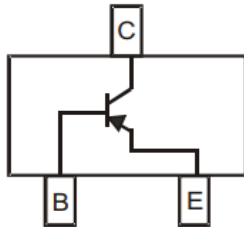


PNP General Purpose Amplifier



SOT-23

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-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 2T

■ 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		-40
Emitter-Base Voltage	V_{EBO}	V		-5
Collector Current -Continuous	I_C	mA		-600
Total Device Dissipation (*)	P_D	mW		300
Thermal Resistance Junction to Ambient (*)	R_{thJA}	K/W		417
Junction Temperature	T_J	°C		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-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C = -1\text{mA}, I_E = 0$	-40	
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C = -100\mu\text{A}, I_E = 0$	-40	
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E = -100\mu\text{A}, I_C = 0$	-5	
Collector cut-off current	I_{CBO}	nA	$V_{CE} = -35\text{V}, I_E = 0$		-100
Base cut-off current	I_{CEO}	nA	$V_{CE} = -35\text{V}, I_B = 0$		-100
Collector cut-off current	I_{EBO}	nA	$V_{EB} = -4\text{V}, I_C = 0$		-100
DC current gain	h_{FE}		$V_{CE} = -2\text{V}, I_C = -150\text{mA}$	100	300
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = -150\text{mA}, I_B = -15\text{mA}$		-0.4
			$I_C = -500\text{mA}, I_B = -50\text{mA}$		-0.75
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C = -150\text{mA}, I_B = -15\text{mA}$		-0.95
			$I_C = -500\text{mA}, I_B = -50\text{mA}$		-1.3
Transition frequency	f_T	MHz	$V_{CE} = -10\text{V}, I_C = -20\text{mA}, f = 100\text{MHz}$	200	
Delay time	t_d	ns	$V_{CC} = -3\text{V}, V_{EB} = -2\text{V}$ $I_C = -150\text{mA}, I_{B1} = -15\text{mA}$		15
Rise time	t_r	ns			20
Storage time	t_s	ns	$V_{CC} = -3\text{V},$ $I_C = -150\text{mA}, I_{B1} = I_{B2} = -15\text{mA}$		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
MMBT4403Q	F2	Approximate 0.01	3000	30000	120000	7" reel



■ Characteristics (Typical)

Fig.1 - Static characteristic

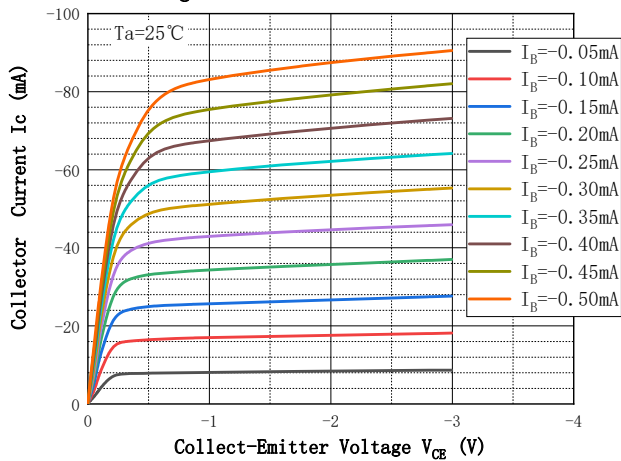


Fig.2 - DC Current Gain

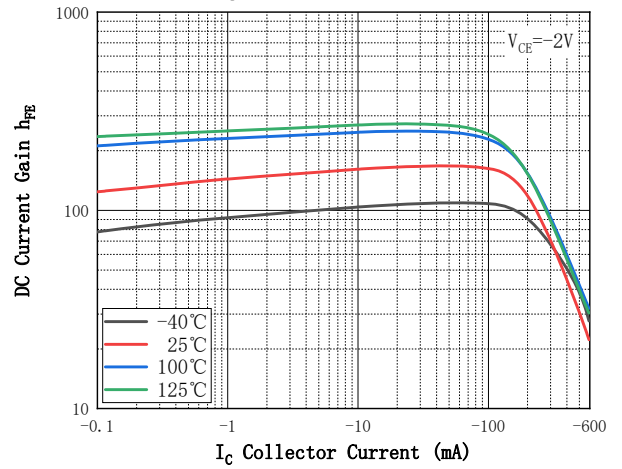


Fig.3 - Collect-Emitter Saturation Voltage

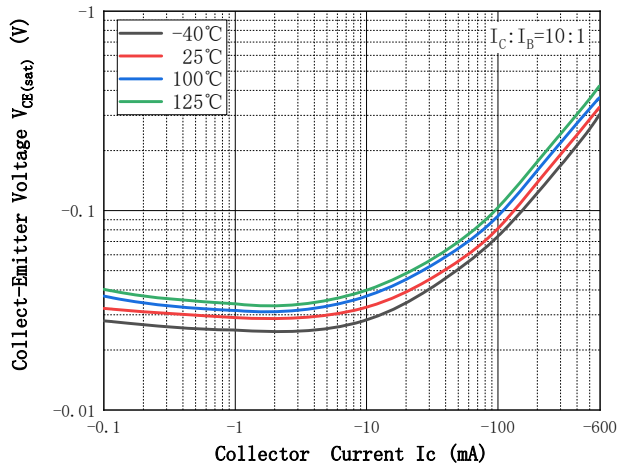


Fig.4 - Base-Emitter Voltage

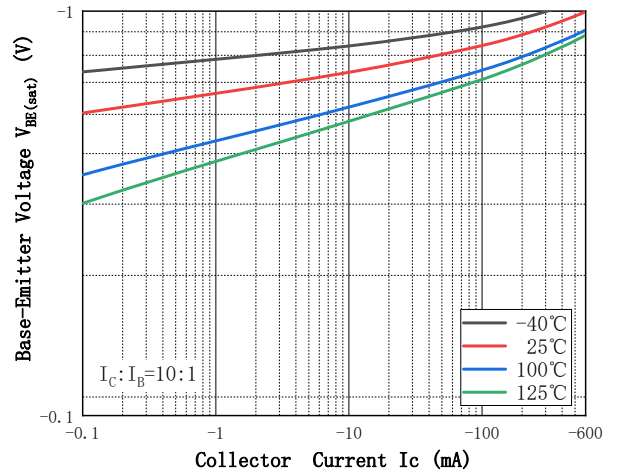


Fig.5 - Base-Emitter On Voltage

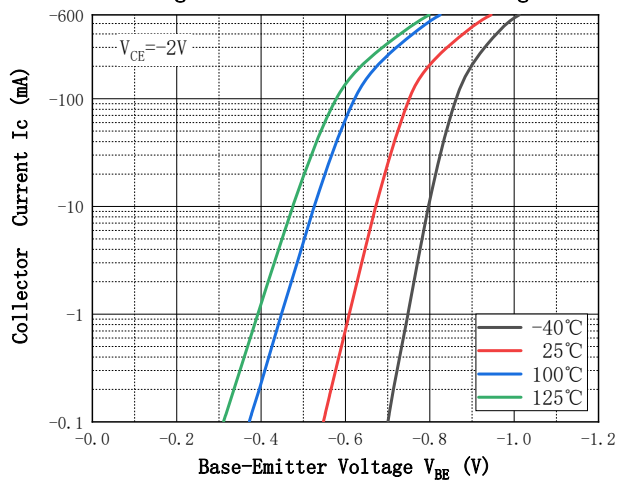


Fig.6 - Cob/Cib—VCB/VEB

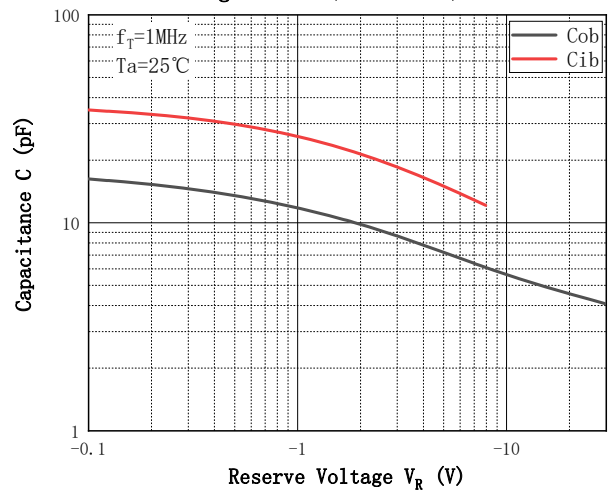
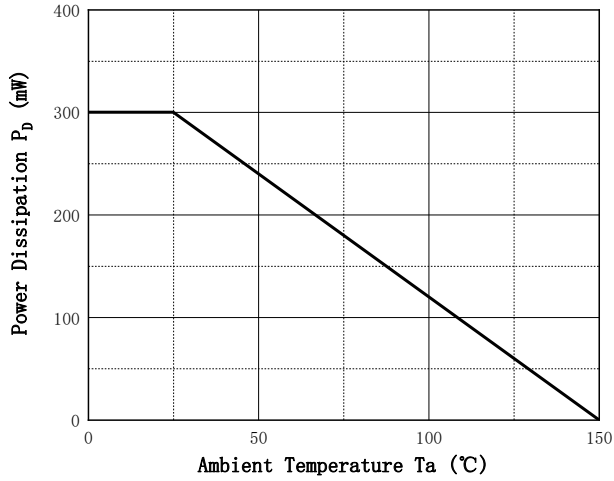
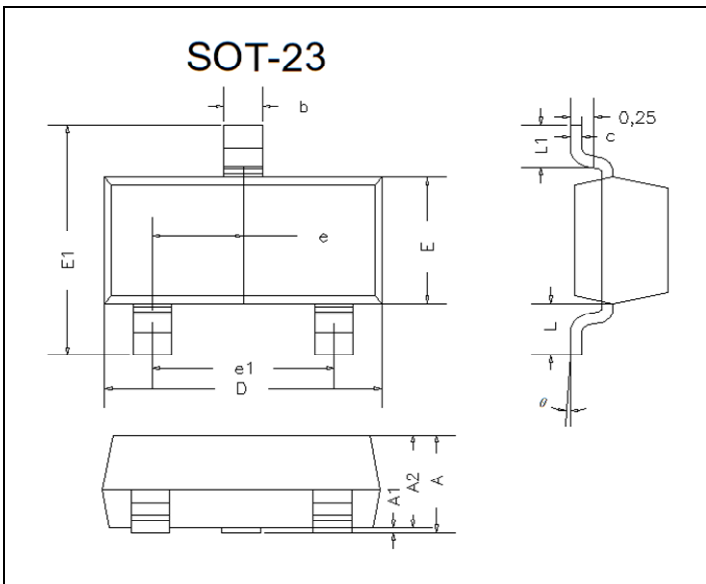


Fig. 7 - Power Derating Curve

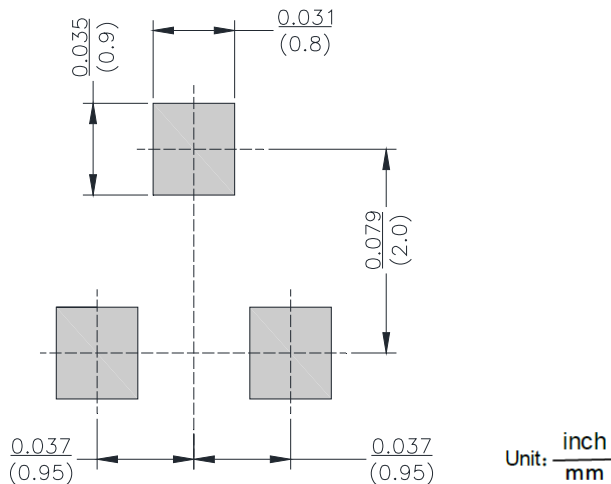


■ SOT-23 Package Outline Dimensions



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





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