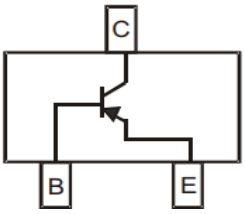
PNP General Purpose Amplifier



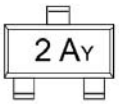
SOT-23

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

Mechanical Data

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



2A = Product Type Marking Code
Y=Date Code Marking

Date code Ke years a cycle）

Year	Odd years(eg 2019)											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	J	O	L	C	K	B	P	D	M	E	G	F

Year	Even years(eg 2018)											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	W	N	Y	T	R	H	A	I	U	X	Z	S

■ Maximum Ratings (Ta=25℃ 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		-200
Total Device Dissipation (*)	P_D	mW		300
Thermal Resistance Junction to Ambient (*)	R_{thJA}	K/W		417
Junction Temperature	T_j	℃		-55 to +150
Storage Temperature	T_{STG}	℃		-55 to +150

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

■ Electrical Characteristics (Ta=25℃ unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Max
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	Vdc	I_C =-1mAdc,I_B=0	-40	
Collector-base breakdown voltage	$V_{(BR)CBO}$	Vdc	I_C=-10uAdc,I_E=0	-40	
Emitter-base breakdown voltage	$V_{(BR)EBO}$	Vdc	I_E=-10μAdc,I_C=0	-5	
Collector cut-off current	I_{CBO}	uAdc	V_{CB}=-40Vdc, I_E =0		-0.1
Collector cut-off current	I_{CEX}	nAdc	V_{CE}=-30VdcC, V_{EB}=-3.0Vdc		-50
Emitter cut-off current	I_{EBO}	uAdc	V_{EB}=-5Vdc, I_C =0		-0.1
DC current gain	h_{FE}		V_{CE}=-1Vdc,I_C=-0.1mAdc	40	
	h_{FE}		V_{CE}=-1Vdc,I_C=-1.0mAdc	70	
	h_{FE}		V_{CE}=-1Vdc,I_C=-10mAdc	100	300
	h_{FE}		V_{CE}=-1Vdc,I_C=-50mAdc	60	
	h_{FE}		V_{CE}=-1Vdc,I_C=-100mAdc	30	
Collector-emitter saturation voltage	$V_{CE(sat)}$	Vdc	I_C=-10mAdc,I_B=-1.0mAdc		-0.25
			I_C=-50mAdc,I_B=-5.0mAdc		-0.4
Base-emitter saturation voltage	$V_{BE(sat)}$	Vdc	I_C=-10mAdc,I_B=-1.0mAdc	-0.65	-0.85
			I_C=-50mAdc,I_B=-5.0mAdc		-0.95
Ouput Capacitance	Cobo	pF	V_{CB}=-5.0Vdc,f=1.0MHz,I_E=0		4.5
Input Capacitance	Cibo	pF	V_{EB}=-5.0Vdc,f=1.0MHz,I_C=0		10
Delay time	td	ns	VCC=-3.0Vdc, VBE=-0.5Vdc, IC=-10mAdc,IB1=-1.0mAdc		35
Rise time	tr	ns			35
Storage time	ts	ns	VCC=-3.0Vdc, IC=-10mAdc,IB1=IB2=-1.0mAdc		225
Fall time	tf	ns			75

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBT3906Q	F2	Approximate 0.01	3000	30000	120000	7” reel

■ Characteristics (Typical)

Fig.1 - Static Characteristic

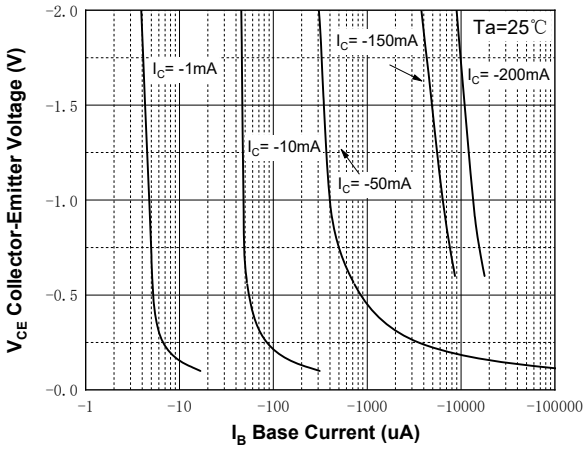


Fig.2 - DC Current Gain

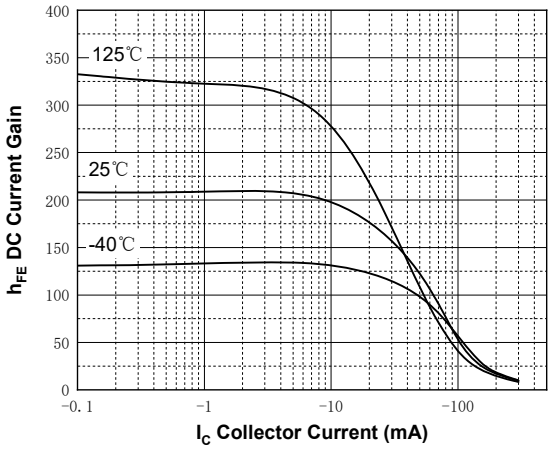


Fig.3 - Collector-Emitter Saturation Voltage

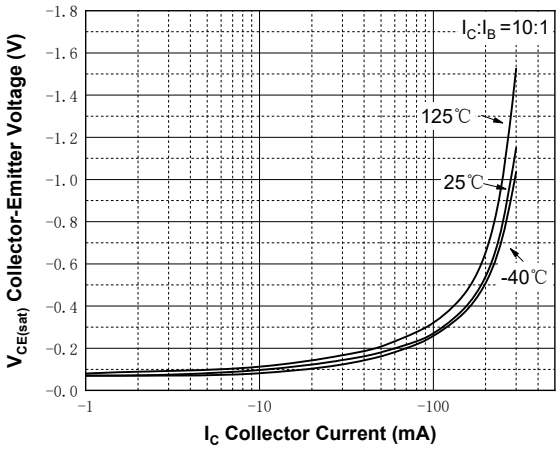


Fig.4 - Base-Emitter Saturation Voltage

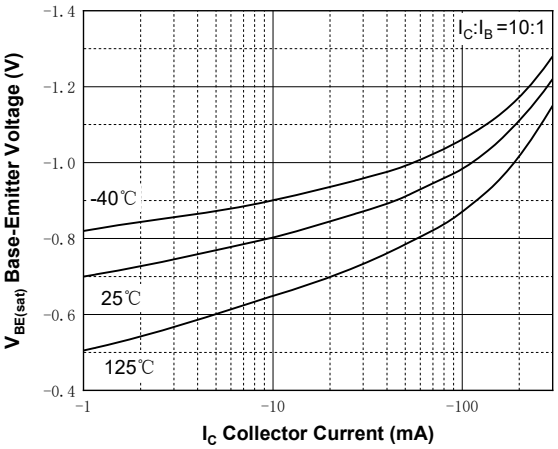
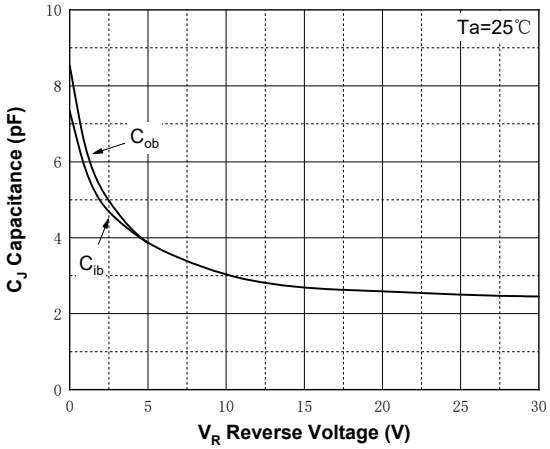
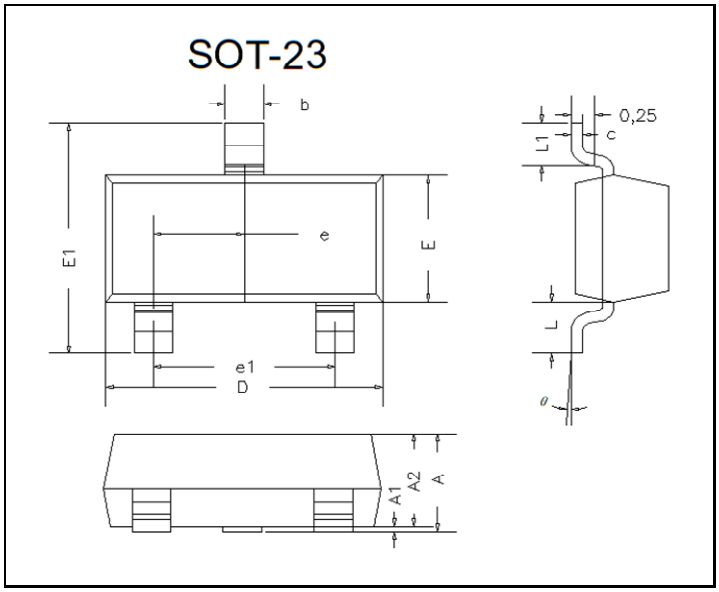


Fig.5 - Capacitance

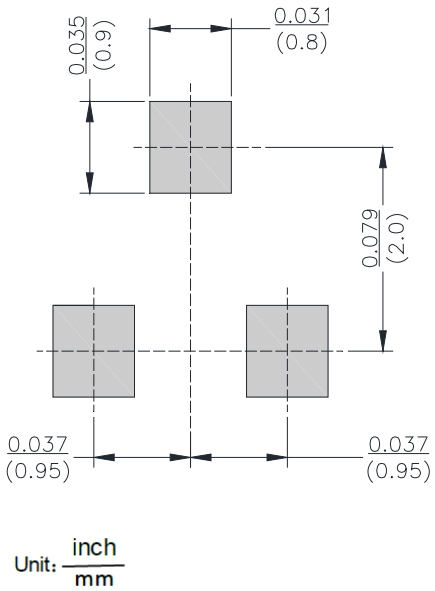


■SOT-23 Package Outline Dimensions



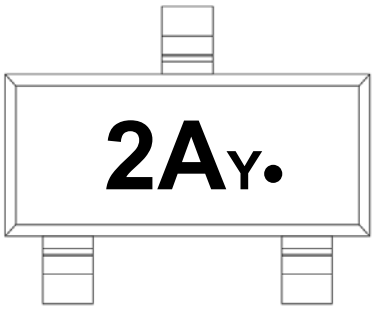
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.035	0.045	0.90	1.15	
A1	0.000	0.004	0.00	0.10	
A2	0.035	0.041	0.90	1.05	
b	0.012	0.020	0.30	0.50	
c	0.004	0.008	0.10	0.20	
D	0.110	0.118	2.80	3.00	
E	0.047	0.055	1.20	1.40	
E1	0.089	0.100	2.25	2.55	
e	0.370TYP		0.95TYP		
e1	0.071	0.079	1.80	2.00	
L	0.220REF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

■ SOT-23 Suggested Pad Layout



Unit: inch / mm

■ Marking Information



Note:
1. All marking is at middle of the product body
2. All marking is in laser marking
3. 2AY is Marking Code determined by specific date
4. Body color: Black

Disclaimer

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