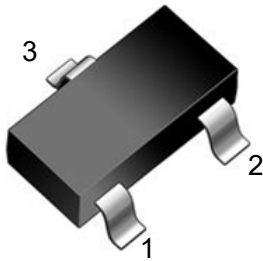
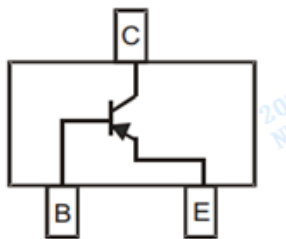


PNP General Purpose Amplifier



SOT-23



Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- Low collector-emitter saturation voltage
- High current capabilities
- High collector current gain (h_{FE}) at high I_C
- High efficiency due to less heat generation
- Part no. with suffix "Q" means AEC-Q101 qualified

Applications

- General purpose switching and muting
- LCD backlighting
- Supply line switching circuits
- Battery driven equipment

Mechanical Data

- **Case:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 9B

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

Item	Symbol	Unit	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	A	-1
Total Device Dissipation	P_C	mW	300
Thermal Resistance Junction to Ambient	R_{thJA}	$^\circ\text{C}/\text{W}$	417
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_{CBO}	V	$I_C = -10\mu\text{A}, I_E = 0$	-40		
Collector-emitter breakdown voltage	V_{CEO}	V	$I_C = -1\text{mA}, I_B = 0$	-40		
Emitter-base breakdown voltage	V_{EBO}	V	$I_E = -10\mu\text{A}, I_C = 0$	-5		



Collector-base cut-off current	I_{CBO}	nA	$V_{CB} = -40V, I_E = 0$			-100
Collector-emitter cut-off current	I_{CEO}	nA	$V_{CE} = -30V, I_B = 0$			-100
Emitter-base cut-off current	I_{EBO}	nA	$V_{EB} = -5V, I_C = 0$			-100
DC current gain	h_{FE}		$V_{CE} = -5V, I_C = -1mA$	300		
	h_{FE}		$V_{CE} = -5V, I_C = -100mA$	300		800
	h_{FE}		$V_{CE} = -5V, I_C = -500mA$	250		
	h_{FE}		$V_{CE} = -5V, I_C = -1A$	160		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = -100mA, I_B = -1mA$			-0.2
	$V_{CE(sat)}$	V	$I_C = -500mA, I_B = -20mA$			-0.35
	$V_{CE(sat)}$	V	$I_C = -1A, I_B = -100mA$			-0.5
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C = -1A, I_B = -50mA$			-1.1
Base-emitter voltage	V_{BE}	V	$V_{CE} = -5V, I_C = -1A$			-1.0
Collector-base output capacitance	C_{ob}	pF	$V_{CB} = -10V, f = 1MHz, V_{sig} = 50mV_{p-p}$			12

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

Item	Symbol	Unit	Conditions	Min	Typ	Max
Transition frequency	f_T	MHz	$V_{CE} = -10V, I_C = -50mA, f = 100MHz$	150		

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
PMMT591AQ	F2	Approximate 0.010	3000	30000	120000	7" reel

Characteristics (Typical)

Fig.1 - Collector Saturation Region

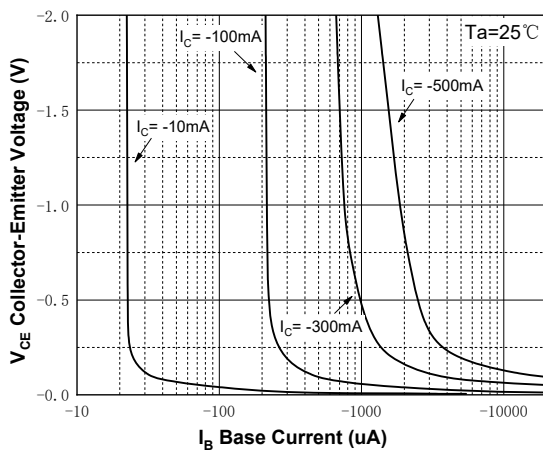


Fig.2 - DC Current Gain

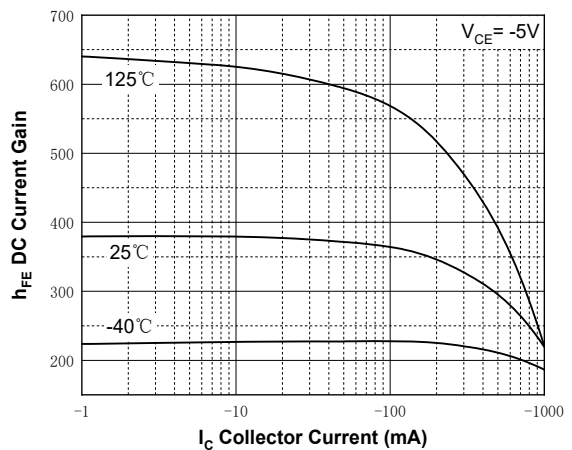




Fig.3 - Collector-Emitter Saturation Voltage vs. Collector Current

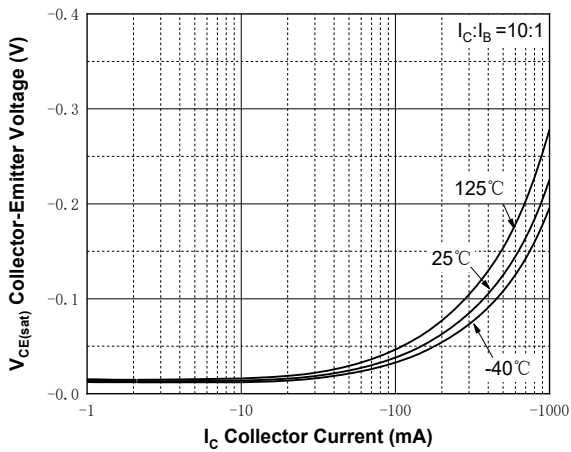


Fig.4 - Collector-Emitter Saturation Voltage vs. Collector Current

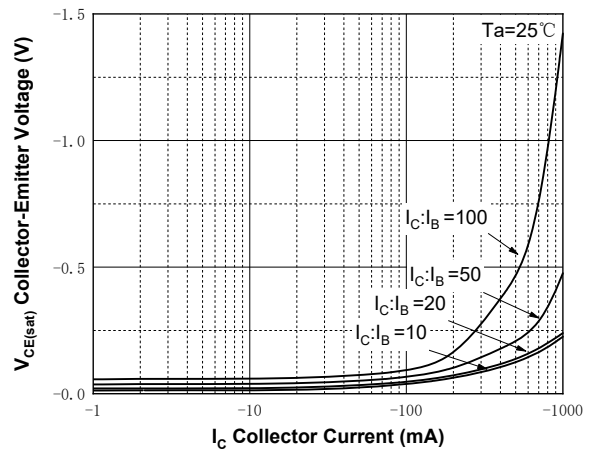


Fig.5 - Base-Emitter Saturation Voltage vs. Collector Current

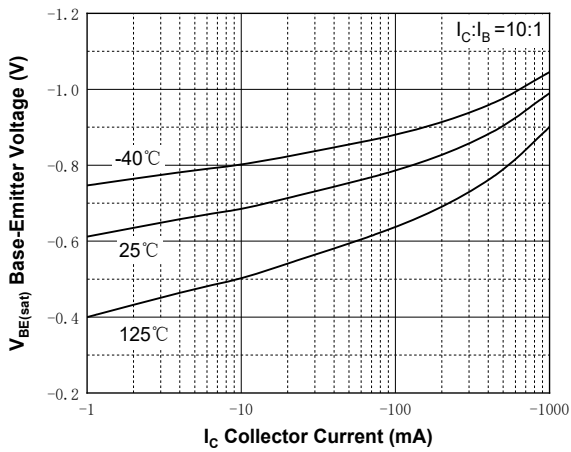


Fig.6 - Capacitance

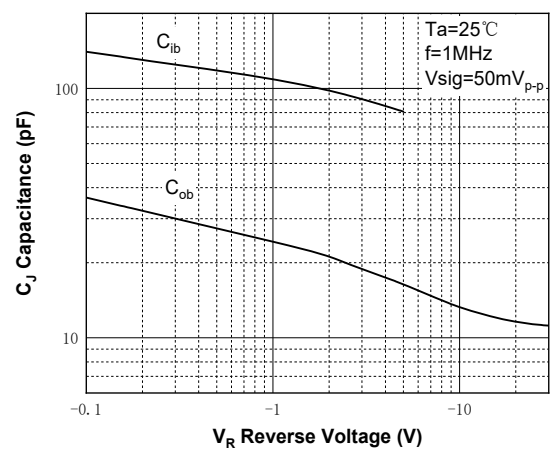
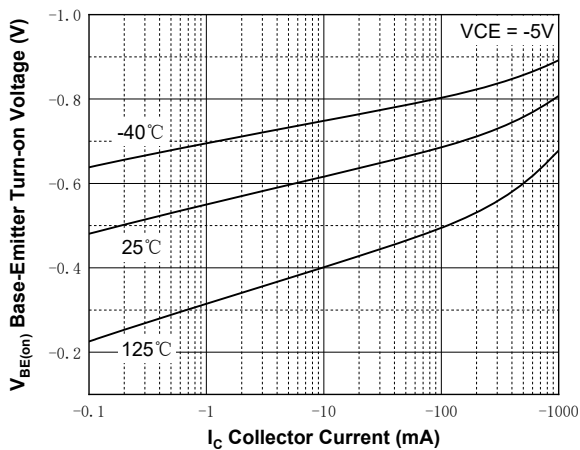
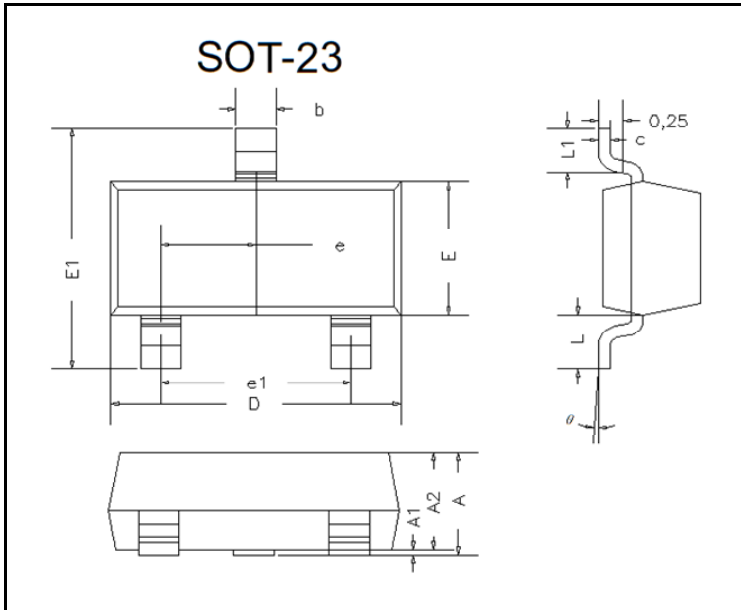


Fig.7 - Base-Emitter Turn-on Voltage vs. Collector Current

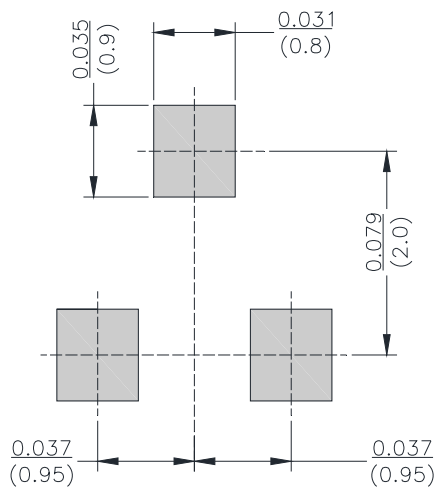


■ Outline Dimensions



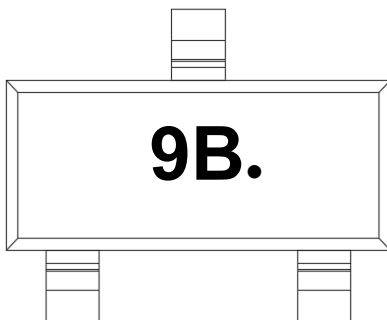
DIM	INCHES		MM	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.90	1.15
A1	0.000	0.004	0.00	0.10
A2	0.035	0.041	0.90	1.05
b	0.012	0.020	0.30	0.50
c	0.004	0.008	0.10	0.20
D	0.110	0.118	2.80	3.00
E	0.047	0.055	1.20	1.40
E1	0.089	0.100	2.25	2.55
e	0.370TYP.		0.95TYP.	
e1	0.071	0.079	1.80	2.00
L	0.220REF.		0.55REF.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

■ Soldering Footprint



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

■ Marking Information



Note:

1. All marking is at middle of the product body
2. All marking is in laser marking
3. 9B is Marking Code
4. Body color: Black



Disclaimer

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