

2N2907AQ-CH

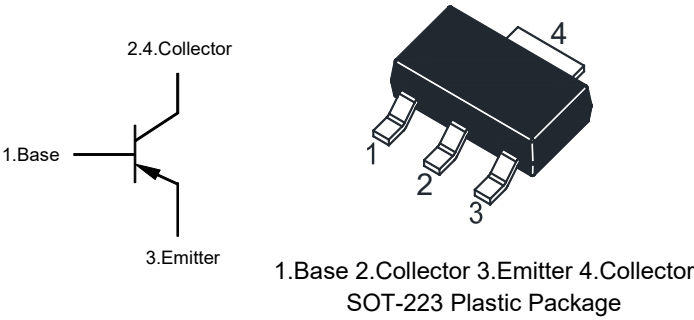
PNP Silicon Epitaxial Planar Power Transistor

Features

- AEC-Q101 Qualified
- Halogen and Antimony Free(HAF),
RoHS compliant

Application

- For use in linear and switching



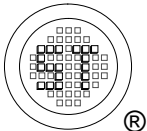
Absolute Maximum Ratings (T_a = 25°C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	-V _{CBO}	60	V
Collector Emitter Voltage	-V _{CEO}	60	V
Emitter Base Voltage	-V _{EBO}	5	V
Collector Current	-I _C	600	mA
Peak Collector Current, Pulsed	-I _{CM}	800	mA
Total Power Dissipation ¹⁾	P _{tot}	1.5	W
Operating and Storage Temperature Range	T _j , T _{stg}	- 55 to + 150	°C

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient ¹⁾	R _{θJA}	83.3	°C/W

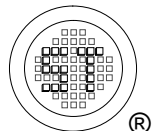
¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate



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Characteristics at $T_a = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at $-V_{CE} = 10\text{ V}$, $-I_C = 0.1\text{ mA}$	h_{FE}	75	-	-
at $-V_{CE} = 10\text{ V}$, $-I_C = 1\text{ mA}$	h_{FE}	100	-	-
at $-V_{CE} = 10\text{ V}$, $-I_C = 10\text{ mA}$	h_{FE}	100	-	-
at $-V_{CE} = 10\text{ V}$, $-I_C = 150\text{ mA}$	h_{FE}	100	300	-
at $-V_{CE} = 10\text{ V}$, $-I_C = 500\text{ mA}$	h_{FE}	50	-	-
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	50	nA
Collector Base Cutoff Current at $-V_{CB} = 50\text{ V}$	$-I_{CBO}$	-	50	nA
Collector Emitter Cutoff Current at $-V_{CE} = 50\text{ V}$	$-I_{CEO}$	-	5	μA
Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	60	-	V
Collector Emitter Breakdown Voltage at $-I_C = 10\text{ mA}$	$-V_{(BR)CEO}$	60	-	V
Emitter Base Breakdown Voltage at $-I_E = 100\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $-I_C = 150\text{ mA}$, $-I_B = 15\text{ mA}$ at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-V_{CE(sat)}$	- -	0.4 1.6	V
Base Emitter Saturation Voltage at $-I_C = 150\text{ mA}$, $-I_B = 15\text{ mA}$ at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-V_{BE(sat)}$	- -	1.3 2.6	V
Transition Frequency at $-V_{CE} = 20\text{ V}$, $-I_C = 50\text{ mA}$, $f = 100\text{ MHz}$	f_T	200	-	MHz
Collector Output Capacitance at $-V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	8	pF
Input Capacitance at $-V_{EB} = 2\text{ V}$, $f = 1\text{ MHz}$	C_{ib}	-	30	pF
Turn-on Time at $-V_{CC} = 30\text{ V}$, $-I_C = 150\text{ mA}$, $-I_{B1} = 15\text{ mA}$	t_{on}	-	45	ns
Delay Time at $-V_{CC} = 30\text{ V}$, $-I_C = 150\text{ mA}$, $-I_{B1} = 15\text{ mA}$	t_d	-	10	ns
Rise Time at $-V_{CC} = 30\text{ V}$, $-I_C = 150\text{ mA}$, $-I_{B1} = 15\text{ mA}$	t_r	-	40	ns
Turn-off Time at $-V_{CC} = 6\text{ V}$, $-I_{B1} = -I_{B2} = 15\text{ mA}$, $-I_C = 150\text{ mA}$	t_{off}		100	ns
Storage Time at $-V_{CC} = 6\text{ V}$, $-I_{B1} = -I_{B2} = 15\text{ mA}$, $-I_C = 150\text{ mA}$	t_s	-	80	ns
Fall Time at $-V_{CC} = 6\text{ V}$, $-I_{B1} = -I_{B2} = 15\text{ mA}$, $-I_C = 150\text{ mA}$	t_f	-	30	ns



Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

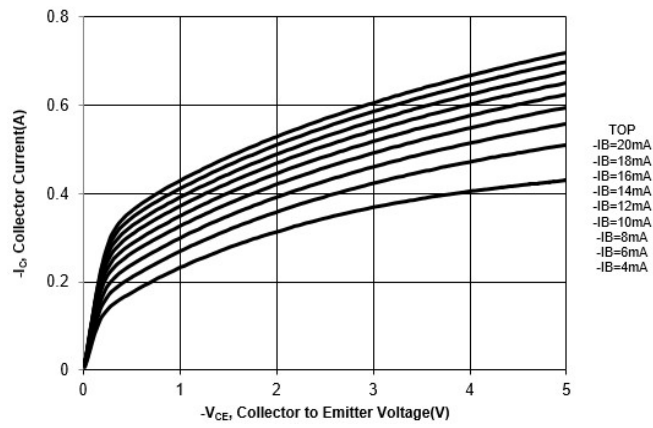


Fig. 2 Collector Current vs. Base to Emitter Voltage

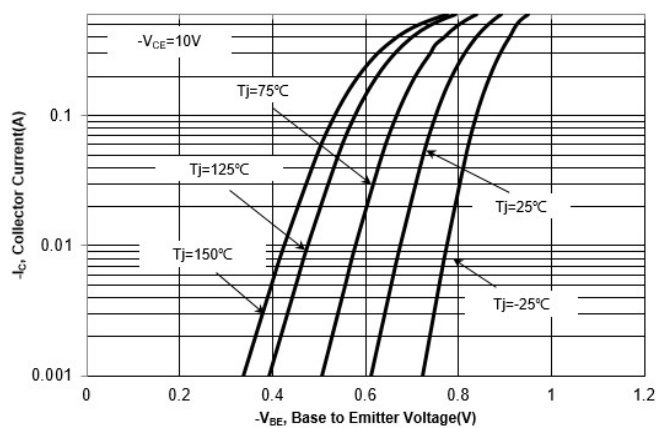


Fig. 3 DC Current Gain vs. Collector Current

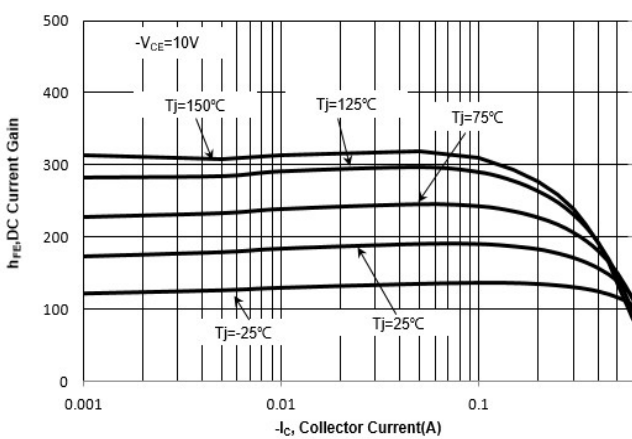
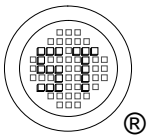
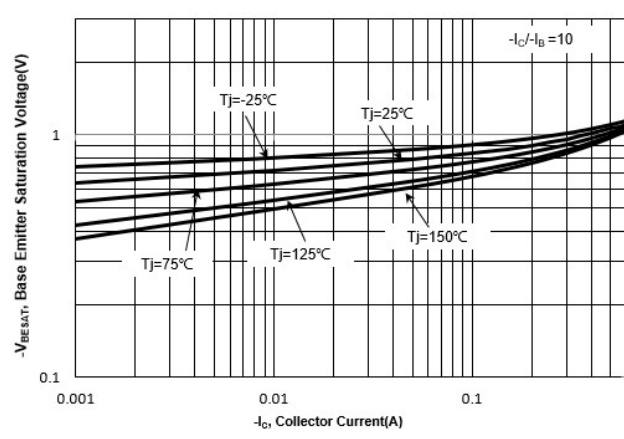


Fig. 4 $V_{BE(sat)}$ vs. Collector Current



Electrical Characteristics Curves

Fig. 5 $V_{CE(sat)}$ vs. Collector Current

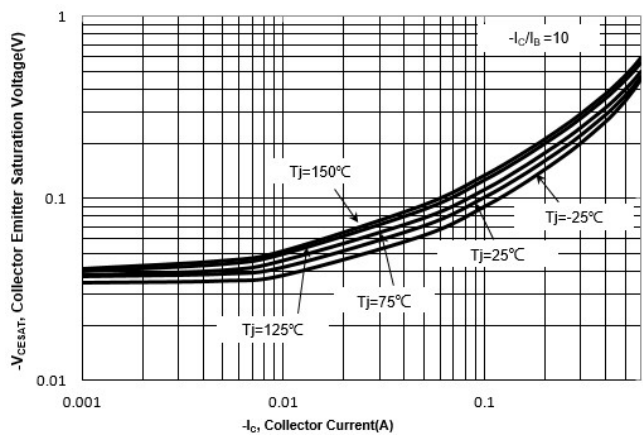


Fig. 6 Output Capacitance

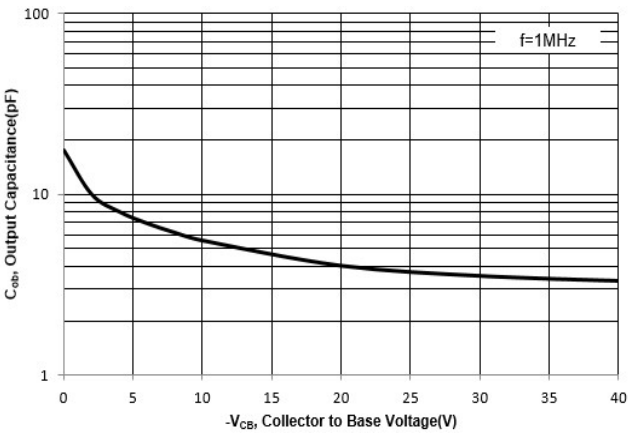
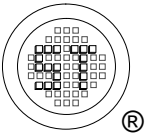
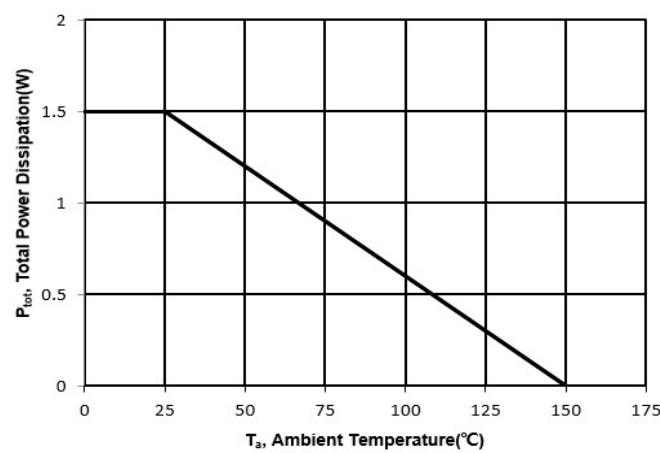


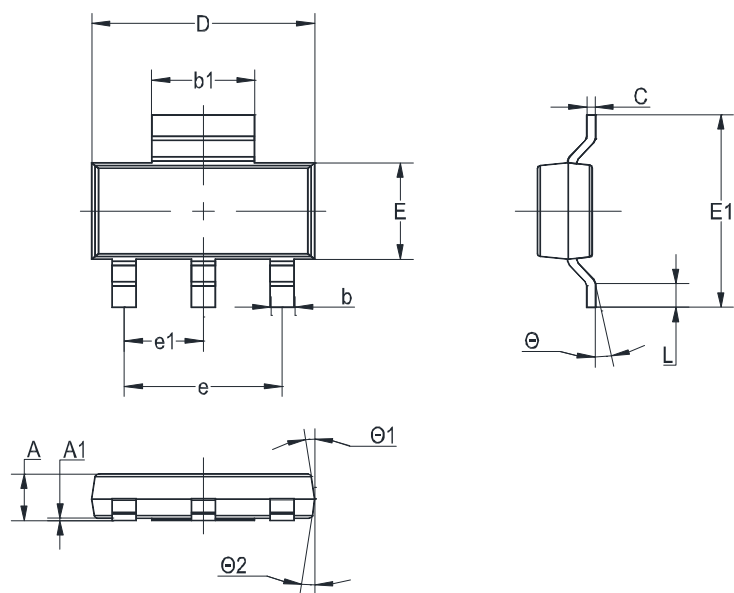
Fig. 7 Power Derating Curve



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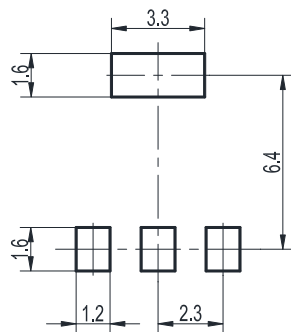
Package Outline (Dimensions in mm)

SOT-223



Unit	A	A1	b	b1	C	D	E	E1	e	e1	L	Θ	Θ1	Θ2
mm	1.8 1.5	0.1 MAX	0.8 0.6	3.1 2.9	0.32 0.22	6.7 6.3	3.7 3.3	7.3 6.7	4.6 TYP	2.3 TYP	1.1 0.7	10° 0°	7° 0°	7° 0°

Recommended Soldering Footprint



Packing information

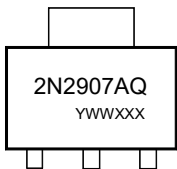
Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-223	12	8 ± 0.1	0.315 ± 0.004	330	13	3,000

Marking information

" 2N2907AQ " = Part No.

" YWWXXX " = Date Code Marking

Font type: Arial



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