

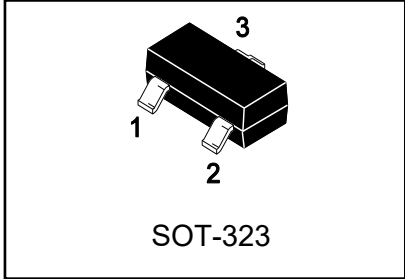
# General Purpose Transistors

## NPN Silicon

### FEATURE

- Low Cob, Cob=2pF(Typ.).
- Epitaxial planar type.
- PNP complement: 2SA1576A
- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

## 2SC4081 Series S-2SC4081 Series

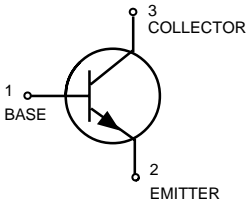


### DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
2SC4081Q S-2SC4081Q	BQ	3000/Tape&Reel
2SC4081R S-2SC4081R	BR	3000/Tape&Reel
2SC4081S S-2SC4081S	BS	3000/Tape&Reel

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	$V_{CEO}$	50	V
Collector–Base Voltage	$V_{CBO}$	60	V
Emitter–Base Voltage	$V_{EBO}$	7.0	V
Collector Current — Continuous	$I_C$	150	mAdc
Collector power dissipation	$P_C$	0.15	W
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 ~ +150	°C



**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted.)

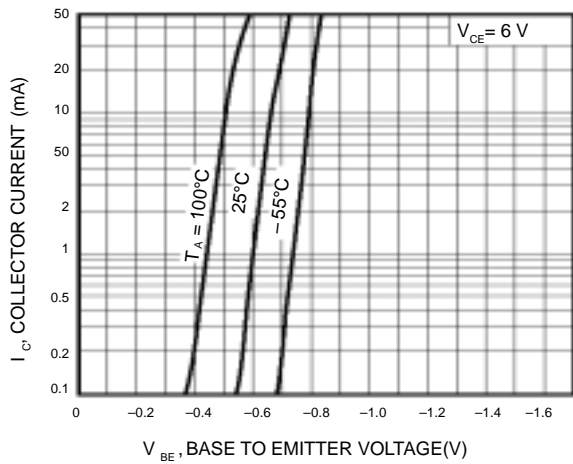
Characteristic	Symbol	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage ( $I_C = 1\text{ mA}$ )	$V_{(BR)CEO}$	50	—	—	V
Emitter–Base Breakdown Voltage ( $I_E = 50\ \mu\text{A}$ )	$V_{(BR)EBO}$	7	—	—	V
Collector–Base Breakdown Voltage ( $I_C = 50\ \mu\text{A}$ )	$V_{(BR)CBO}$	60	—	—	V
Collector Cutoff Current ( $V_{CB} = 60\text{ V}$ )	$I_{CBO}$	—	—	0.1	$\mu\text{A}$
Emitter cutoff current ( $V_{EB} = 7\text{ V}$ )	$I_{EBO}$	—	—	0.1	$\mu\text{A}$
Collector-emitter saturation voltage ( $I_C / I_B = 50\text{ mA} / 5\text{ mA}$ )	$V_{CE(sat)}$	—	—	0.4	V
DC current transfer ratio ( $V_{CE} = 6\text{ V}$ , $I_C = 1\text{ mA}$ )	$h_{FE}$	120	—	560	—
Transition frequency ( $V_{CE} = 12\text{ V}$ , $I_E = -2\text{ mA}$ , $f = 30\text{ MHz}$ )	$f_T$	—	180	—	MHz
Output capacitance ( $V_{CB} = 12\text{ V}$ , $I_E = 0\text{ A}$ , $f = 1\text{ MHz}$ )	$C_{ob}$	—	2.0	3.5	pF

**$h_{FE}$  values are classified as follows:**

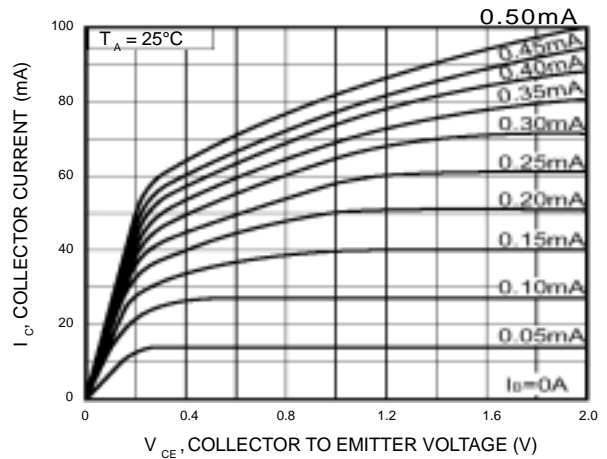
*	Q	R	S
$h_{FE}$	120~270	180~390	270~560



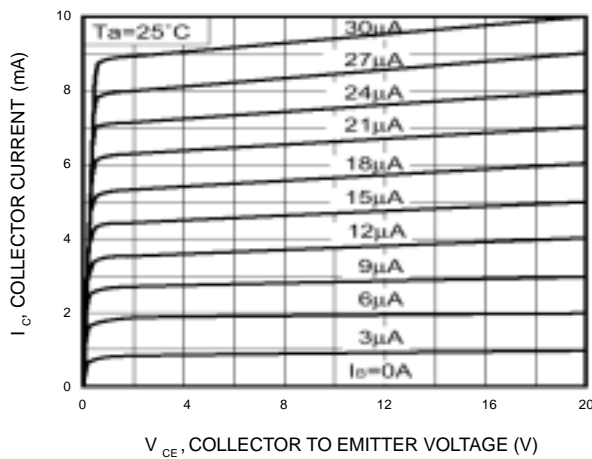
**Fig.1 Grounded emitter propagation characteristics**



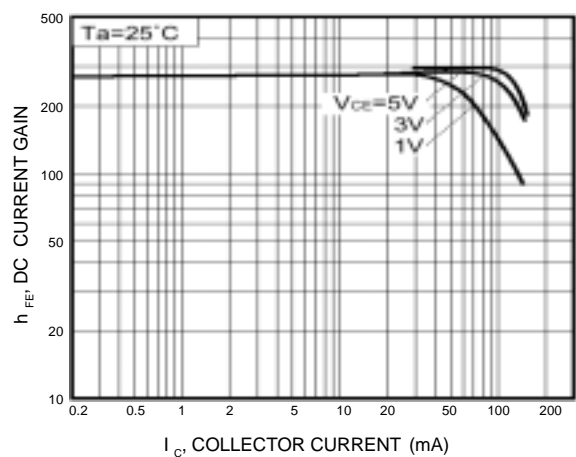
**Fig.2 Grounded emitter output characteristics(I)**



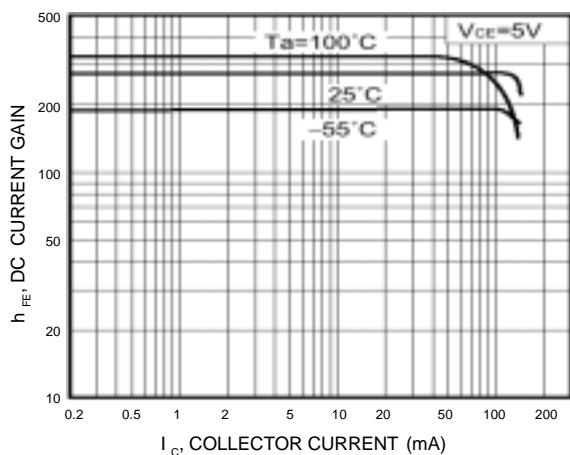
**Fig.3 Grounded emitter output characteristics(II)**



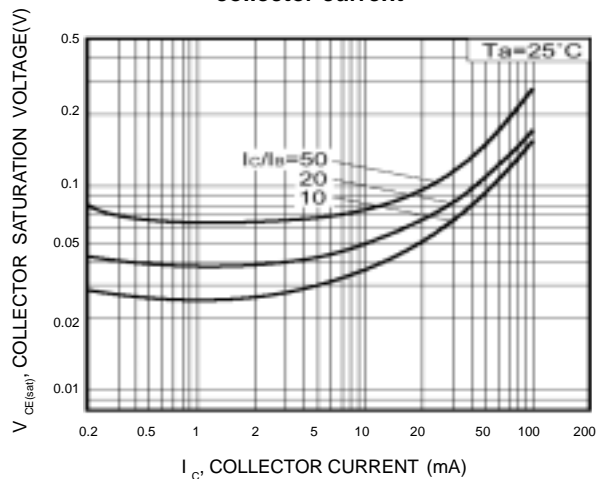
**Fig.4 DC current gain vs. collector current (I)**



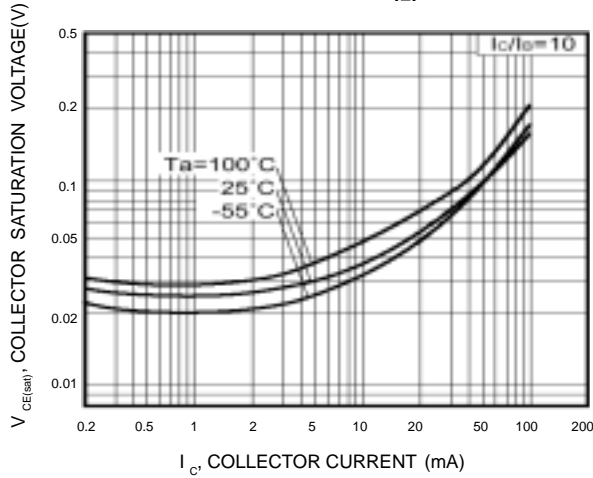
**Fig.5 DC current gain vs. collector current (II)**



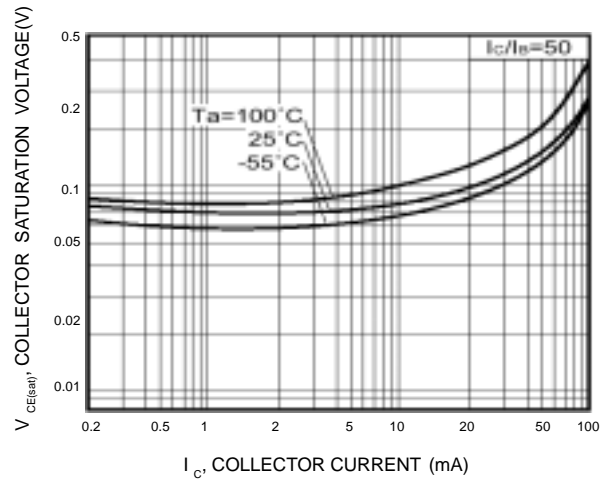
**Fig.6 Collector-emitter saturation voltage vs. collector current**



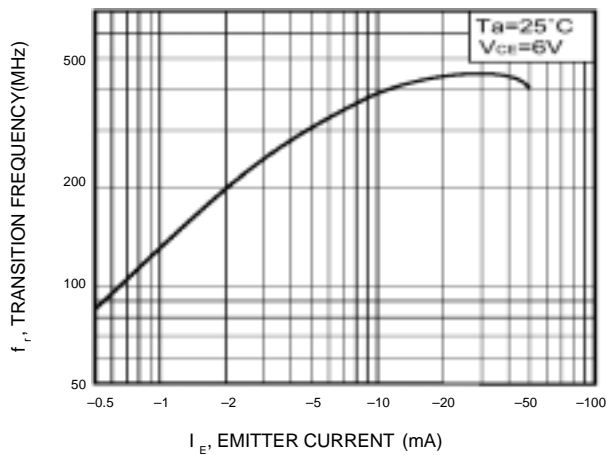
**Fig.7 Collector-emitter saturation voltage vs. collector current (I)**



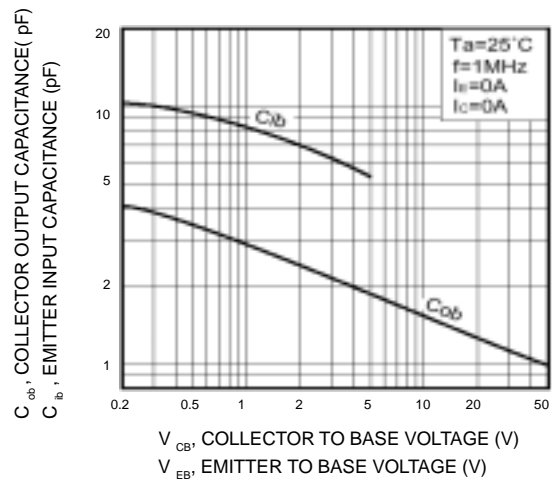
**Fig.8 Collector-emitter saturation voltage vs. collector current (II)**



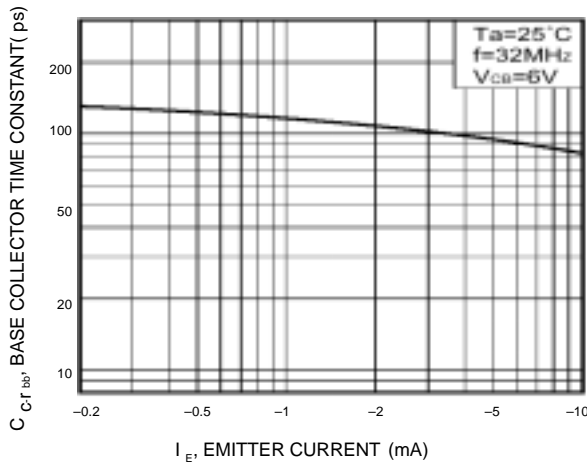
**Fig.9 Gain bandwidth product vs. emitter current**



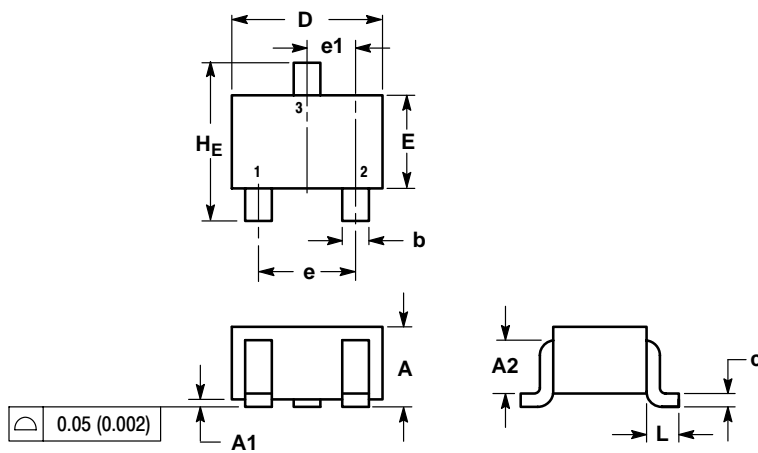
**Fig.10 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage**



**Fig.11 Base-collector time constant vs. emitter current**



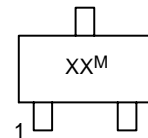
**SOT-323**



NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.7 REF			0.028 REF		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC			0.026 BSC		
L	0.425 REF			0.017 REF		
HE	2.00	2.10	2.40	0.079	0.083	0.095

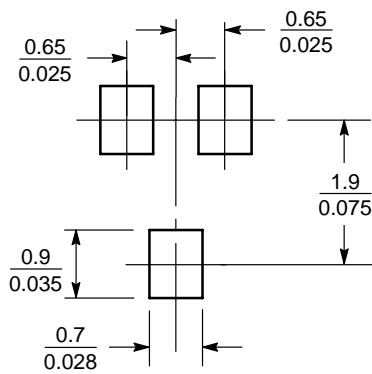
**GENERIC MARKING DIAGRAM**



- XX = Specific Device Code
- M = Date Code
- = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.

**SOLDERING FOOTPRINT\***



SCALE 10:1 (mm/inches)

