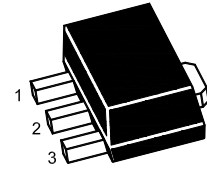


# 2SC401U-AH

## NPN Silicon Epitaxial Planar Transistor

### Features

- AEC-Q101 Qualified
- Low saturation switching application
- Low saturation
- High Voltage
- Halogen and Antimony Free(HAF),  
RoHS compliant



1.Base 2.Collector 3.Emitter  
SOT-89 Plastic Package

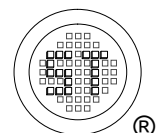
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	80	V
Collector Emitter Voltage	$V_{CEO}$	60	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	1	A
Peak Collector Current (tp = 300 $\mu\text{s}$ )	$I_{CM}$	2	A
Collector Power Dissipation	$P_{tot}$	0.5	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction Ambient <sup>1)</sup>	$R_{\theta JA}$	250	$^\circ\text{C}/\text{W}$

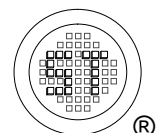
<sup>1)</sup> Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



# 2SC401U-AH

## Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 2\text{ V}$ , $I_C = 100\text{ mA}$ at $V_{CE} = 2\text{ V}$ , $I_C = 1\text{ A}$	$h_{FE}$	200	-	500	-
	$h_{FE}$	80	-	-	-
Collector Base Cutoff Current at $V_{CB} = 60\text{ V}$	$I_{CBO}$	-	-	0.1	$\mu\text{A}$
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	$I_{EBO}$	-	-	0.1	$\mu\text{A}$
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	80	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	60	-	-	V
Emitter Base Breakdown Voltage at $I_E = 10\text{ mA}$	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}$	$V_{CE(sat)}$	-	-	0.4	V
Base Emitter Turn-On Voltage at $V_{CE} = 2\text{ V}$ , $I_B = 500\text{ mA}$	$V_{BE(on)}$	-	-	1.2	V
Gain Bandwidth Product at $V_{CE} = 10\text{ V}$ , $I_C = 50\text{ mA}$	$f_T$	-	160	-	MHz
Output Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	18	-	pF



# 2SC401U-AH

## Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

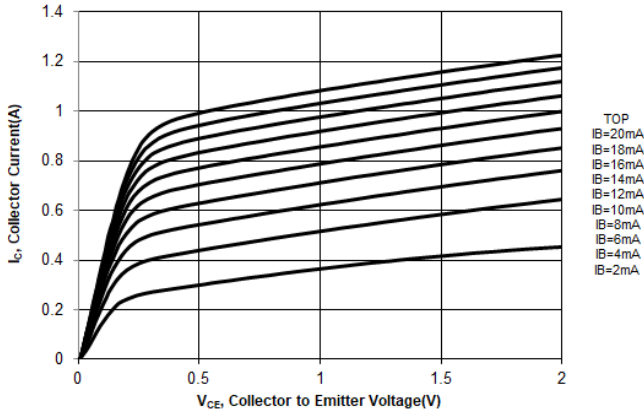


Fig. 2 Collector Current vs. Base to Emitter Voltage

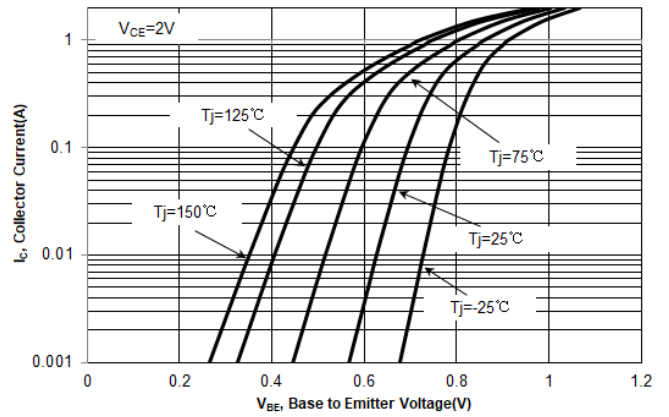


Fig. 3  $h_{FE,DC}$  Current Gain vs. Collector Current

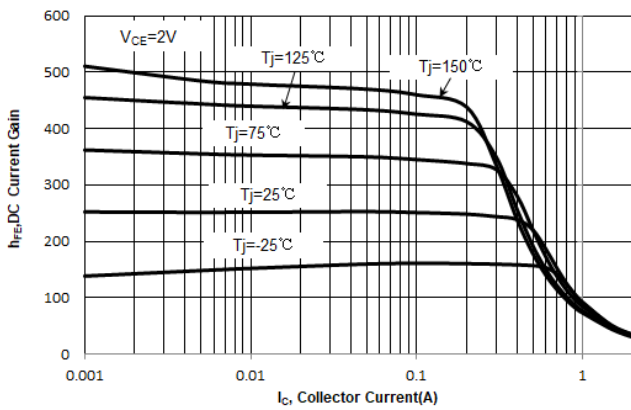
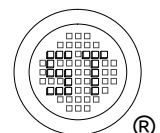
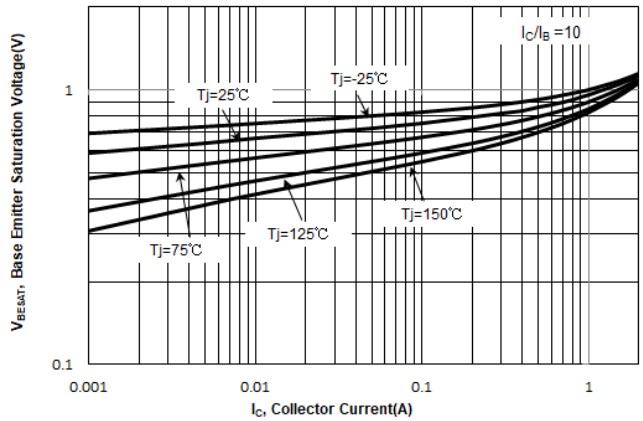


Fig. 4  $V_{BE(sat)}$  vs. Collector Current



# 2SC401U-AH

## Electrical Characteristics Curves

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

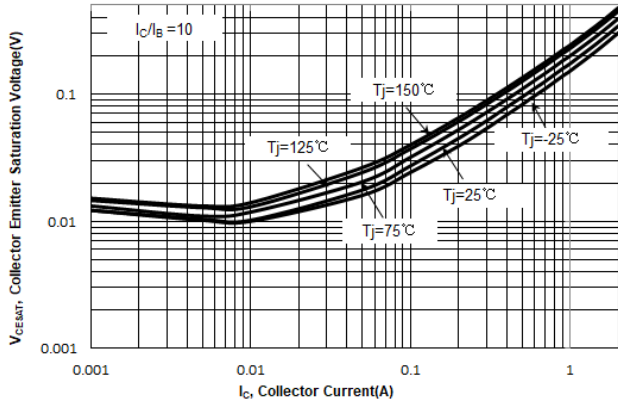


Fig. 6 Junction Capacitance

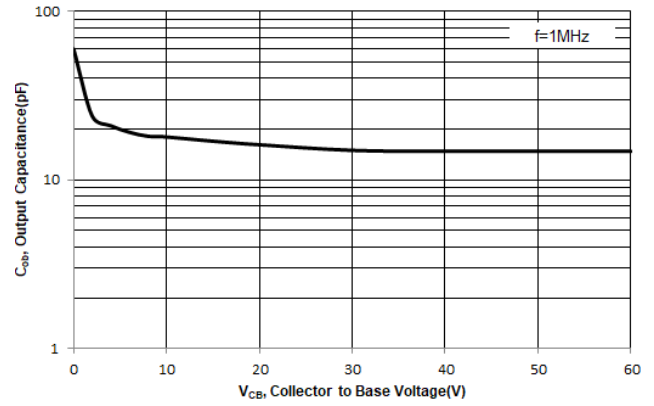
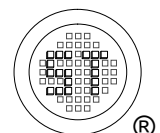
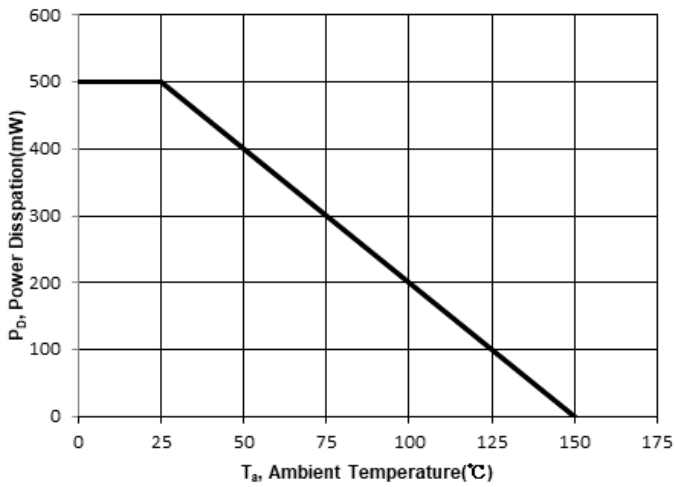


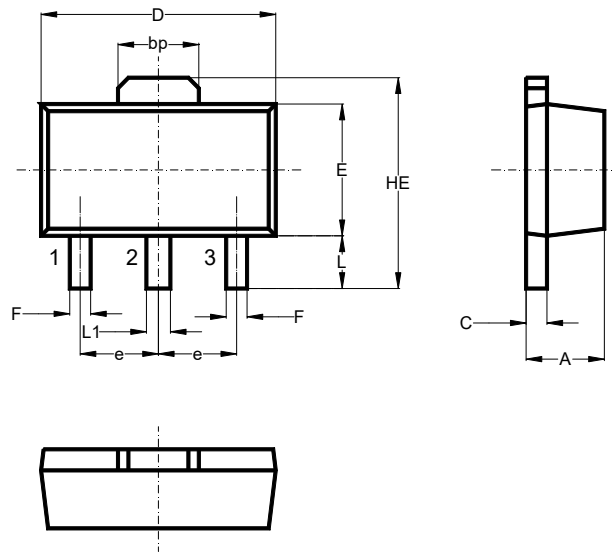
Fig. 7 Power Derating Curve



# 2SC401U-AH

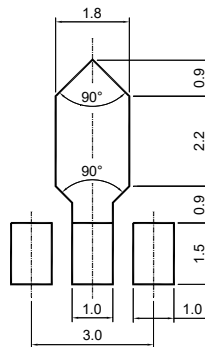
## Package Outline (Dimensions in mm)

SOT-89



Unit	A	bp	C	D	E	F	HE	e	L	L1
mm	1.6	1.60	0.5	4.6	2.6	0.45	4.25	1.5	1.05	0.51
	1.4	1.50	0.3	4.4	2.4	0.35	3.75	typ.	0.95	0.41

## Recommended Soldering Footprint



## Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-89	12	$8 \pm 0.1$	$0.315 \pm 0.004$	178	7	1,000
				330	13	4,000

## Marking information

- "2SC401U" = Part No.
- "•" = HAF (Halogen and Antimony Free)
- "YM" = Date Code Marking
- "Y" = Year
- "M" = Month
- Font type: Arial

