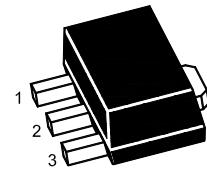


# FCX491A

## NPN Silicon Planar Medium Power Transistor



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

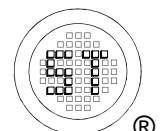
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	40	V
Collector Emitter Voltage	$V_{CEO}$	40	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	1	A
Peak Collector Current	$I_{CM}$	2	A
Collector Power Dissipation	$P_{tot}$	1	W
Operating and Storage Temperature Range	$T_j, T_{stg}$	- 65 to + 150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction Ambient <sup>1)</sup>	$R_{\theta JA}$	125	$^\circ\text{C/W}$

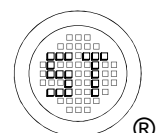
<sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.



# FCX491A

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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at $V_{CE} = 5\text{ V}$ , $I_C = 1\text{ mA}$	$h_{FE}$	300	-	-
at $V_{CE} = 5\text{ V}$ , $I_C = 500\text{ mA}$	$h_{FE}$	300	900	-
at $V_{CE} = 5\text{ V}$ , $I_C = 1\text{ A}$	$h_{FE}$	200	-	-
at $V_{CE} = 5\text{ V}$ , $I_C = 2\text{ A}$	$h_{FE}$	35	-	-
Collector Base Cutoff Current at $V_{CB} = 30\text{ V}$	$I_{CBO}$	-	100	nA
Collector Emitter Cutoff Current at $V_{CE} = 30\text{ V}$	$I_{CES}$	-	100	nA
Emitter Base Cutoff Current at $V_{EB} = 4\text{ V}$	$I_{EBO}$	-	100	nA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	40	-	V
Collector Emitter Breakdown Voltage at $I_C = 10\text{ mA}$	$V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}$	$V_{CE(sat)}$	-	0.3	V
at $I_C = 1\text{ A}$ , $I_B = 100\text{ mA}$		-	0.5	
Base Emitter Saturation Voltage at $I_C = 1\text{ A}$ , $I_B = 100\text{ mA}$	$V_{BE(sat)}$	-	1.1	V
Base Emitter on Voltage at $V_{CE} = 5\text{ V}$ , $I_C = 1\text{ A}$	$V_{BE(on)}$	-	1	V
Transition Frequency at $V_{CE} = 10\text{ V}$ , $I_C = 50\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	150	-	MHz
Collector Base Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	10	pF



# FCX491A

## Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

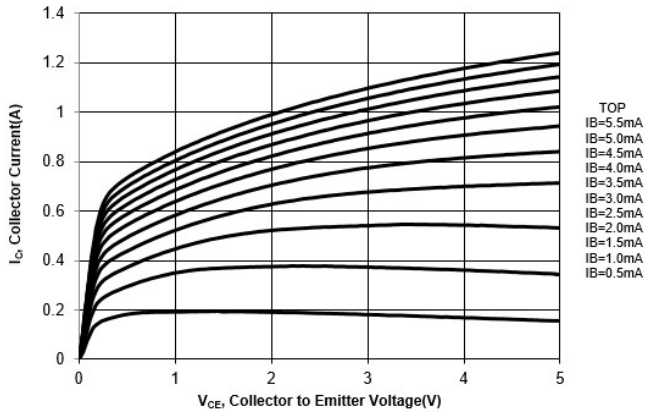


Fig. 2 Collector Current vs. Base to Emitter Voltage

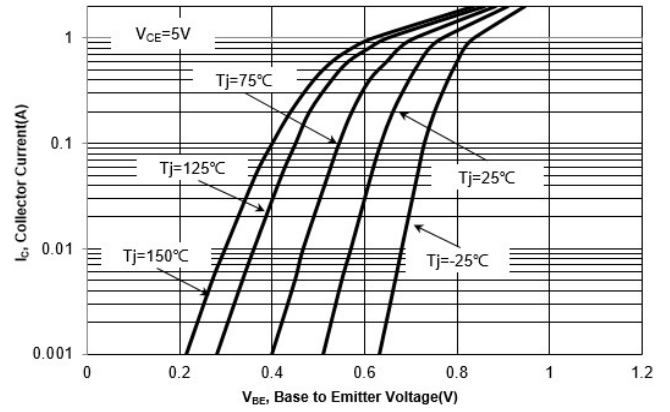


Fig. 3 DC Current Gain vs. Collector Current

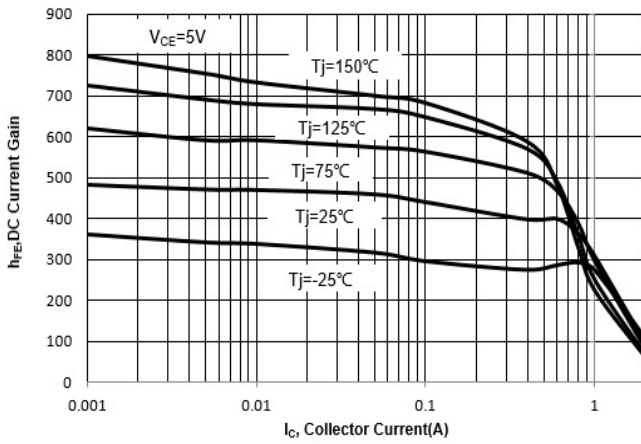
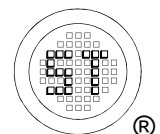
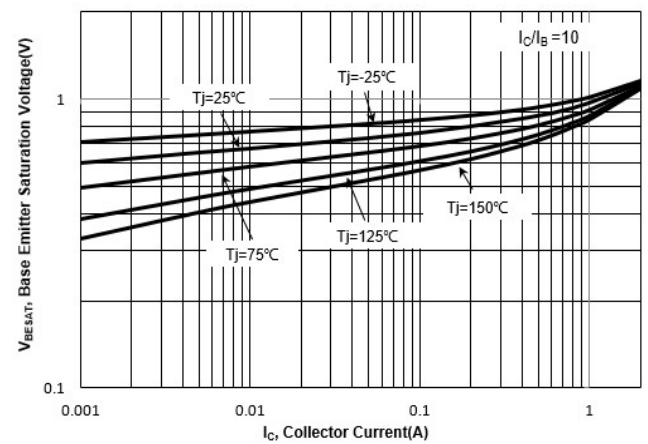


Fig. 4  $V_{BESAT}$  vs. Collector Current



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## Electrical Characteristics Curves

Fig. 5  $V_{CESAT}$  vs. Collector Current

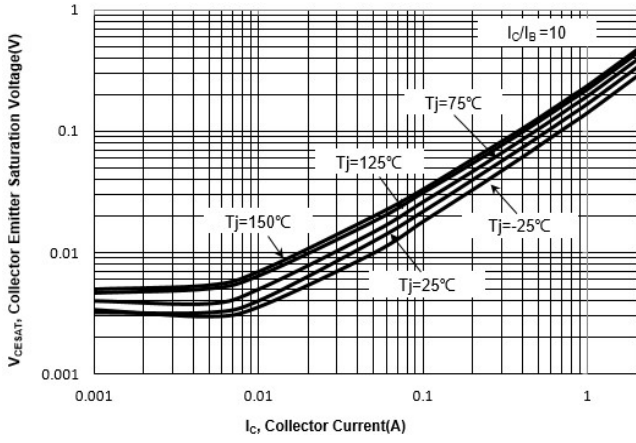


Fig. 6 Output Capacitance

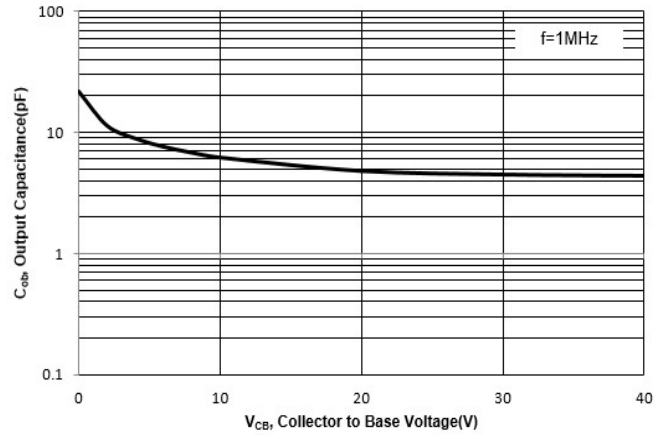
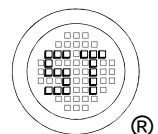
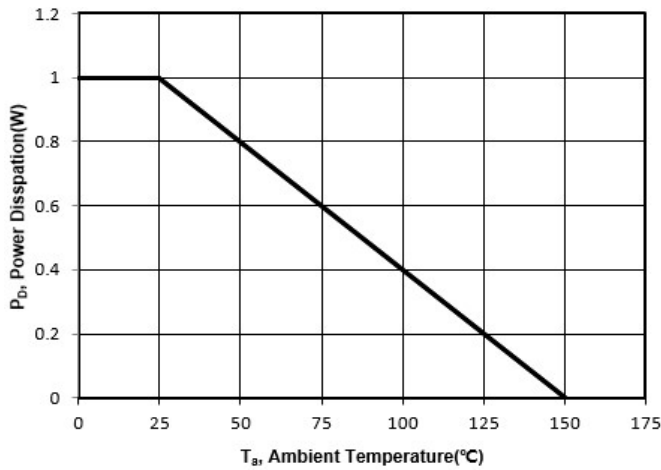


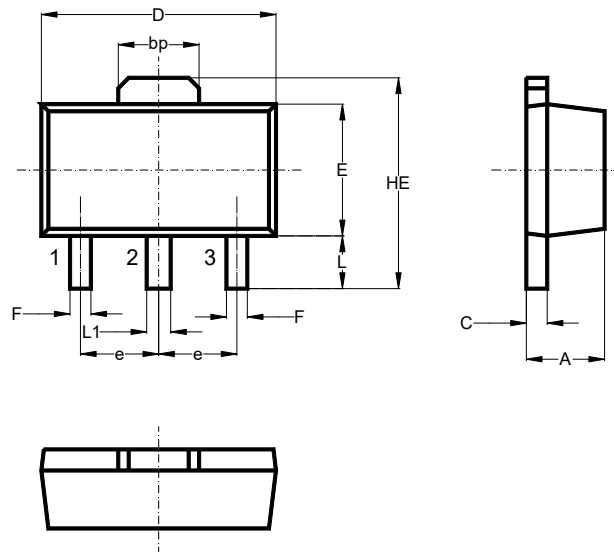
Fig 7. Power Derating Curve



# FCX491A

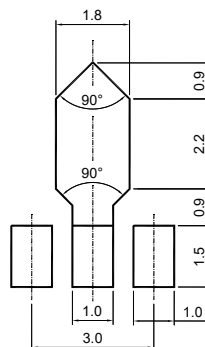
## Package Outline (Dimensions in mm)

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

"FCX491A" = Part No.  
 "YM" = Date Code Marking  
 "Y" = Year  
 "M" = Month  
 Font type: Arial

