



## SOT-89-3L Plastic-Encapsulate Transistors

**2SC1766** TRANSISTOR (NPN)

### FEATURES

- Small Flat Package
- High Speed Switching Time
- Low Collector-emitter saturation voltage

### APPLICATIONS

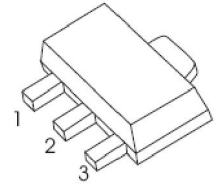
- Power Amplifier

**MAXIMUM RATINGS** ( $T_a=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CB0}$	Collector-Base Voltage	50	V
$V_{CEO}$	Collector-Emitter Voltage	50	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	2	A
$P_C$	Collector Power Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	250	$^\circ\text{C}/\text{W}$
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55~+150	$^\circ\text{C}$

SOT-89-3L

1. BASE
2. COLLECTOR
3. EMITTER



**ELECTRICAL CHARACTERISTICS** ( $T_a=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=50\text{V}, I_E=0$			0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}=2\text{V}, I_C=0.5\text{A}$	82		390	
	$h_{FE(2)}^*$	$V_{CE}=2\text{V}, I_C=2\text{A}$	20			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=1\text{A}, I_B=50\text{mA}$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=1\text{A}, I_B=50\text{mA}$			1.2	V
Transition frequency	$f_T$	$V_{CE}=2\text{V}, I_C=0.5\text{A}, f=100\text{MHz}$		120		MHz

### CLASSIFICATION OF $h_{FE(1)}$

RANK	P	Q	Y
RANGE	82 - 180	120 - 270	180 - 390
MARKING	P1766	Q1766	Y1766

\*Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

# Typical Characteristics

# 2SC1766

