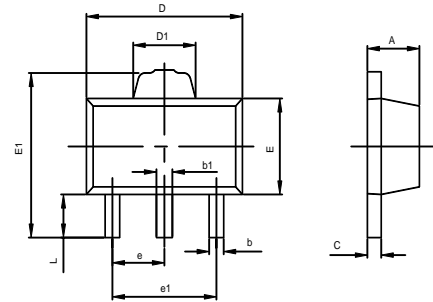
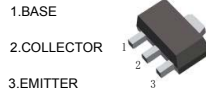


RoHS Compliant Product

## Features

1. -60V Volt  $V_{CEO}$
2. 3 Amp continuous current
3. Low saturation voltage

SOT-89



### ● Absolute maximum ratings ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	-80	V
Collector-emitter voltage	$V_{CEO}$	-60	V
Emitter-base voltage	$V_{EBO}$	-5	V
Collector current	$I_c$	-3	A(DC)
		-6	A(Pulse)*1
Total power dissipation	$P_c$	0.5	W
		2	W *2
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55~+150	$^\circ\text{C}$

\*1 Single pulse,  $P_w=10\text{ms}$

\*2 When mounted on a  $40 \times 40 \times 0.7$  mm ceramic board.

Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.360	0.560	0.014	0.022
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.400	1.800	0.055	0.071
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	2.900	3.100	0.114	0.122
L	0.900	1.100	0.035	0.043

### ● Electrical characteristics ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	-80	-	-	V	$I_c=-100\mu\text{A}$ , $I_E=0$
Collector-emitter breakdown voltage	$BV_{CEO}$	-60	-	-	V	$I_c=-10\text{mA}$ , $I_B=0$
Emitter-base breakdown voltage	$BV_{EBO}$	-5	-	-	V	$I_E=-100\mu\text{A}$ , $I_c=0$
Collector cutoff current	$I_{cBO}$	-	-	0.1	$\mu\text{A}$	$V_{CB}=-60\text{V}$ , $I_E=0$
Emitter cutoff current	$I_{EBO}$	-	-	0.1	$\mu\text{A}$	$V_{EB}=-4\text{V}$ , $I_c=0$
Collector-emitter saturation voltage 1	$V_{CE(sat)1}$	-	-150	-300	mV	$I_c=-1\text{A}$ , $I_B=-100\text{mA}$
Collector-emitter saturation voltage 2	$V_{CE(sat)2}$	-	-450	-600	mV	$I_c=-3\text{A}$ , $I_B=-300\text{mA}$
Base-emitter saturation voltage Sat	$V_{BE(sat)}$	-	-0.9	-1.25	V	$I_c=-1\text{A}$ , $I_B=-100\text{mA}$
Base-emitter saturation voltage On	$V_{BE(on)}$	-	-0.8	-1.0	V	$V_{CE}=-2\text{V}$ , $I_c=-1\text{A}$
Output capacitance	$C_{ob}$	-	-	30	pF	$V_{CB}=-10\text{V}$ , $I_E=0\text{A}$ , $f=1\text{MHz}$
Current Gain - Bandwidth Product	$f_T$	100	140	-	MHz	$V_{CE}=-5\text{V}$ , $I_c=-100\text{mA}$ , $f=100\text{MHz}$
Switching Time	$t_{on}$	-	40	-	ns	$V_{CC}=-10\text{V}$ , $I_c=-500\text{mA}$ , $I_{B1}=I_{B2}=-50\text{mA}$
	$t_{off}$	-	450	-		
Current Gain	$h_{FE1}$	70	200	-		$V_{CE}=-2\text{V}$ , $I_c=-50\text{mA}$
	$h_{FE2}$	100	200	300		$V_{CE}=-2\text{V}$ , $I_c=-500\text{mA}$
	$h_{FE3}$	80	170	-		$V_{CE}=-2\text{V}$ , $I_c=-1\text{A}$
	$h_{FE4}$	40	150	-		$V_{CE}=-2\text{V}$ , $I_c=-2\text{A}$

Note: Measured under pulse condition. Pulse width<300us, Duty cycle<2%  
Spice parameter data is available upon request for this device.

**Electrical characteristics curves**

