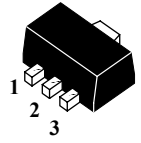


### NPN EPITAXIAL PLANAR TRANSISTOR

 Lead(Pb)-Free

1. BASE  
2. COLLECTOR  
3. EMITTER



**SOT-89**

#### ABSOLUTE MAXIMUM RATINGS( $T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Rating	Symbol	Value	Unit
Collector to Base Voltage	$V_{CB0}$	400	V
Collector to Emitter Voltage	$V_{CEO}$	400	V
Emitter to Base Voltage	$V_{EBO}$	5	V
Collector Current (DC)	$I_C$	200	mA
Total Device Dissipation $T_A=25^{\circ}\text{C}$	$P_D$	500	mW
Junction Temperature	$T_j$	+150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$

## ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage $I_C=10\mu A, I_E=0$	$BV_{CBO}$	400	-	-	V
Collector-Emitter Breakdown Voltage $I_C=1mA, I_B=0$	$BV_{CEO}$	400	-	-	V
Emitter-Base Breakdown Voltage $I_E=10\mu A, I_C=0$	$BV_{EBO}$	5.0	-	-	V
Collector Cut-Off Current $V_{CB}=300V, I_E=0$	$I_{CBO}$	-	-	0.1	$\mu A$
Emitter-Cut-Off Current $V_{EB}=4V, I_C=0$	$I_{EBO}$	-	-	0.1	$\mu A$

## ON CHARACTERISTICS

DC Current Gain $V_{CE}=10V, I_C=50mA$	$h_{FE}$	60	-	200	-
Collector-Emitter Saturation Voltage $I_C=50mA, I_B=5mA$	$V_{CE(sat)}$	-	-	0.6	V
Base-Emitter Saturation Voltage $I_C=50mA, I_B=5mA$	$V_{BE(sat)}$	-	-	1.0	V

## DYNAMIC CHARACTERISTICS

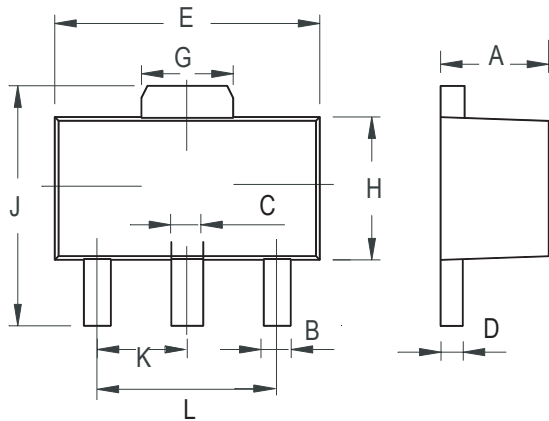
Transition Frequency $V_{CE}=30V, I_C=10mA$	$f_T$	-	70	-	MHz
Output Capacitance $V_{CB}=30V, I_E=0, f=1MHz$	$C_{ob}$	-	4.0	-	pF
Turn-ON Time $V_{CC}=150V, I_C=50mA, I_{B1}=-I_{B2}=5mA$	$t_{on}$	-	0.25	-	$\mu s$
Turn-OFF Time $V_{CC}=150V, I_C=50mA, I_{B1}=-I_{B2}=5mA$	$t_{off}$	-	5.0	-	$\mu s$

CLASSIFICATION OF  $h_{FE}$ 

Rank	D	E
Range	60-120	100-200
Marking	CN	

**SOT-89 Outline Dimensions**

unit:mm



<b>SOT-89</b>		
<b>Dim</b>	<b>Min</b>	<b>Max</b>
<b>A</b>	1.400	1.600
<b>B</b>	0.320	0.520
<b>C</b>	0.360	0.560
<b>D</b>	0.350	0.440
<b>E</b>	4.400	4.600
<b>G</b>	1.400	1.800
<b>H</b>	2.300	2.600
<b>J</b>	3.940	4.250
<b>K</b>	1.500TYP	
<b>L</b>	2.900	3.100