

RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

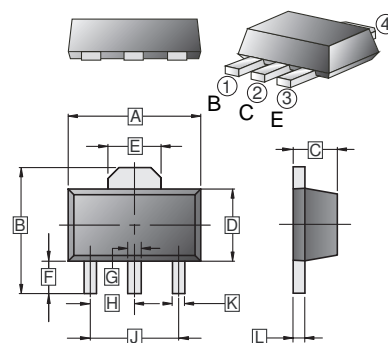
## FEATURES

- Small Flat Package
- High Breakdown Voltage
- Excellent DC Current Gain Linearity

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

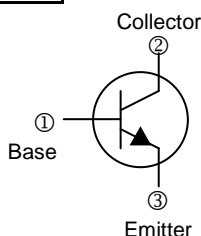
Product-Rank	2SD1005-W	2SD1005-V	2SD1005-U
Range	90~180	135~270	200~400
Marking	BW	BV	BU

## SOT-89



## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-89	1K	7 inch



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.60	G	0.40	0.58
B	3.94	4.25	H	1.50	TYP
C	1.40	1.60	J	3.00	TYP
D	2.25	2.60	K	0.32	0.52
E	1.50	1.85	L	0.35	0.44
F	0.89	1.20			

## ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Collector-Base Voltage	$V_{CBO}$	100	V
Collector-Emitter Voltage	$V_{CEO}$	80	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current-Continuous	$I_C$	1	A
Collector Power Dissipation	$P_C$	500	mW
Maximum Junction to Ambient	$R_{\theta JA}$	250	$^\circ\text{C} / \text{W}$
Junction & Storage Temperature	$T_J, T_{STG}$	150, -55~150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	100	-	-	V	$I_C=0.1\text{mA}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	80	-	-	V	$I_C=1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	-	-	V	$I_E=0.1\text{mA}, I_C=0$
Collector Cut-Off Current	$I_{CBO}$	-	-	0.1	$\mu\text{A}$	$V_{CB}=100\text{V}, I_E=0$
Emitter Cut-Off Current	$I_{EBO}$	-	-	0.1	$\mu\text{A}$	$V_{EB}=5\text{V}, I_C=0$
DC Current Gain	$h_{FE}^*$	90	-	400		$V_{CE}=2\text{V}, I_C=100\text{mA}$
		25	-	-		$V_{CE}=2\text{V}, I_C=500\text{mA}$
Collector-Emitter Saturation voltage	$V_{CE(sat)}^*$	-	-	0.5	V	$I_C=500\text{mA}, I_B=50\text{mA}$
Base-emitter saturation voltage	$V_{BE(sat)}^*$	-	-	1.5	V	$I_C=500\text{mA}, I_B=50\text{mA}$
Base-emitter voltage	$V_{BE}^*$	0.6	-	0.7	V	$V_{CE}=10\text{V}, I_C=10\text{mA}$
Transition Frequency	$f_T$	-	160	-	MHz	$V_{CE}=5\text{V}, I_C=10\text{mA}$
Collector Output Capacitance	$C_{OB}$	-	12	-	pF	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$

\*Pulse test