

GENERAL PURPOSE APPLICATION.  
HIGH VOLTAGE APPLICATION.

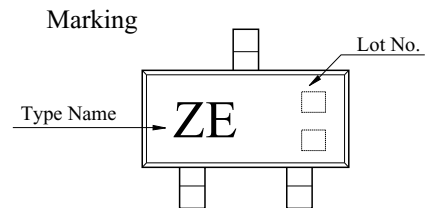
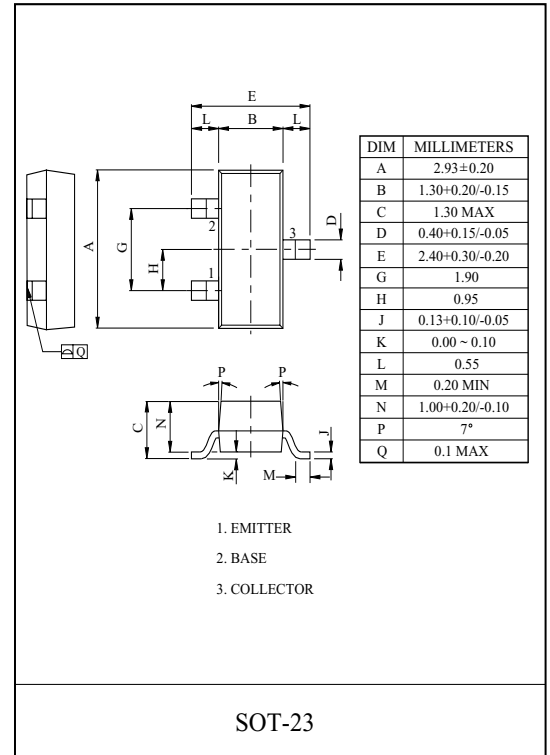
### FEATURES

- High Collector Breakdown Voltage  
:  $V_{CBO} = -160V$ ,  $V_{CEO} = -150V$
- Low Leakage Current.  
:  $I_{CBO} = -50nA(\text{Max.}) @ V_{CB} = -120V$
- Low Saturation Voltage  
:  $V_{CE(\text{sat})} = -0.5V(\text{Max.}) @ I_C = -50mA, I_B = -5mA$
- Low Noise :  $NF = 8dB(\text{Max.})$

### MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	-160	V
Collector-Emitter Voltage	$V_{CEO}$	-150	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-600	mA
Base Current	$I_B$	-100	mA
Collector Power Dissipation	$P_C^*$	350	mW
Junction Temperature	$T_j$	150	
Storage Temperature Range	$T_{stg}$	-55 150	

Note : \* Package Mounted On 99.5% Alumina  $10 \times 8 \times 0.6mm$ )



# 2N5401S

## ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=-120V, I_E=0$	-	-	-50	nA
		$V_{CB}=-120V, I_E=0, T_a=100$	-	-	-50	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=-3V, I_C=0$	-	-	-50	nA
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-0.1mA, I_E=0$	-160	-	-	V
Collector-Emitter Breakdown Voltage *	$V_{(BR)CEO}$	$I_C=-1mA, I_B=0$	-150	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10 \mu A, I_C=0$	-5	-	-	V
DC Current Gain *	$h_{FE}(1)$	$V_{CE}=-5V, I_C=-1mA$	50	-	-	
	$h_{FE}(2)$	$V_{CE}=-5V, I_C=-10mA$	60	-	240	
	$h_{FE}(3)$	$V_{CE}=-5V, I_C=-50mA$	50	-	-	
Collector-Emitter Saturation Voltage *	$V_{CE(sat)1}$	$I_C=-10mA, I_B=-1mA$	-	-	-0.2	V
	$V_{CE(sat)2}$	$I_C=-50mA, I_B=-5mA$	-	-	-0.5	
Base-Emitter Saturation Voltage *	$V_{BE(sat)1}$	$I_C=-10mA, I_B=-1mA$	-	-	-1.0	V
	$V_{BE(sat)2}$	$I_C=-50mA, I_B=-5mA$	-	-	-1.0	
Transition Frequency	$f_T$	$V_{CE}=-10V, I_C=-10mA, f=100MHz$	100	-	300	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=-10V, I_E=0, f=1MHz$	-	-	6	pF
Small-Signal Current Gain	$h_{fe}$	$V_{CE}=-10V, I_C=-1mA, f=1kHz$	40	-	200	
Noise Figure	NF	$V_{CE}=-5V, I_C=-250 \mu A$ $R_g=1k \Omega, f=10Hz \sim 15.7kHz$	-	-	8	dB

\* Pulse Test : Pulse Width 300  $\mu s$ , Duty Cycle 2%.

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