



# 2SA1511/2SC3901

PNP/NPN Epitaxial Planar Silicon Transistors

## Switching Applications (with Bias Resistance)

**Applications**

- Switching circuits, inverter circuits, interface circuits, driver circuits

**Features**

- On-chip bias resistance:  $R1=4.7k\Omega$
- Small-sized package: SPA

( ):2SA1511

Absolute Maximum Ratings at  $T_a=25^\circ C$

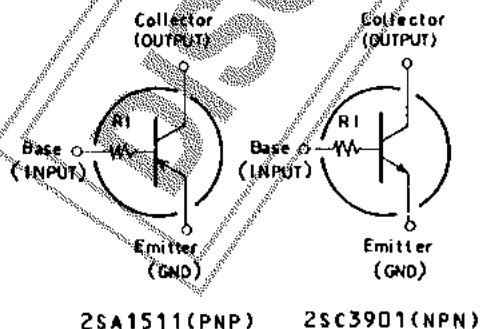
		unit
Collector to Base Voltage	$V_{CBO}$	( $\rightarrow$ ) 50 V
Collector to Emitter Voltage	$V_{CEO}$	( $\rightarrow$ ) 50 V
Emitter to Base Voltage	$V_{EBO}$	(-) 5 V
Collector Current	$I_C$	(-) 100 mA
Collector Current (Pulse)	$I_{CP}$	(-) 200 mA
Collector Dissipation	$P_C$	300 mW
Junction Temperature	$T_J$	150 $^\circ C$
Storage Temperature	$T_{stg}$	-55 to +150 $^\circ C$

Electrical Characteristics at  $T_a=25^\circ C$

		min	typ	max	unit
Collector Cutoff Voltage	$I_{CBO}$ $V_{CB} = (-) 40V, I_E = 0$			(-) 0.1	$\mu A$
Emitter Cutoff Voltage	$I_{EBO}$ $V_{EB} = (\infty) 5V, I_C = 0$			(-) 0.1	$\mu A$
DC Current Gain	$h_{FE}$ $V_{CE} = (-) 5V, I_C = (-) 10mA$	100			
Gain-Bandwidth Product	$f_T$ $V_{CE} = (-) 10V, I_C = (-) 5mA$		250		MHz
			(200)		MHz
Output Capacitance	$c_{ob}$ $V_{CB} = (-) 10V, f = 1MHz$		3.7		pF
			(5.5)		pF
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$ $I_C = (-) 10mA, I_B = (-) 0.5mA$			(-) 0.1 (-) 0.3	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$ $I_C = (-) 10\mu A, I_E = 0$	(-) 50			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$ $I_C = (-) 100\mu A, R_{BE} = \infty$	(-) 50			V

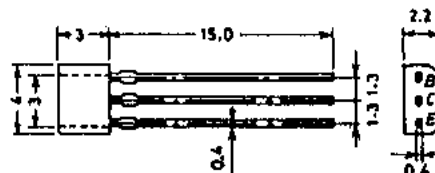
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**Electrical Connection**



**Case Outline 2033**

(unit:mm)



B: Base  
C: Collector  
E: Emitter

SANYO: SPA

Specifications and information herein are subject to change without notice.

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			min	typ	max	unit
Input OFF Voltage	$V_{I(off)}$	$V_{CE} = (-)5V,$ $I_{CE} = (-)100\mu A$	(-)0.4	(-)0.55	(-)0.8	V
Input ON-State Voltage	$V_{I(on)}$	$V_{CE} = (-)0.2V,$ $I_{CE} = (-)10mA$	(-)0.6	(-)1.0	(-)2.0	V
Input OFF-State Voltage	$R_1$		3.3	4.7	6.1	k $\Omega$

