

**2SA1563,
2SC4047**

2018A

PNP/NPN Epitaxial Planar
Silicon Transistors

T-37-13

T-35-11

Switching Applications

(with Bias Resistances $R_1=10k\Omega$, $R_2=47k\Omega$)

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Applications

- Switching circuit, inverter circuit, interface circuit, driver circuit

Features

- On-chip bias resistance ($R_1=10k\Omega$, $R_2=47k\Omega$)
- Small-sized package (CP)

(): 2SA1563

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

			unit
Collector to Base Voltage	V_{CB0}	(-)50	V
Collector to Emitter Voltage	V_{CE0}	(-)50	V
Emitter to Base Voltage	V_{EB0}	(-)6	V
Collector Current	I_C	(-)100	mA
Peak Collector Current	i_{cp}	(-)200	mA
Collector Dissipation	P_C	200	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

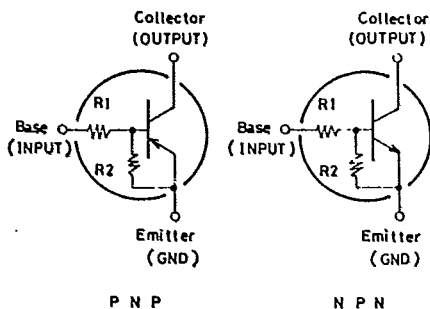
Electrical Characteristics at $T_a=25^\circ\text{C}$

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)40\text{V}, I_E=0$			(-)0.1	μA
Collector Cutoff Current	I_{CEO}	$V_{CE}=(-)40\text{V}, I_B=0$			(-)0.5	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)5\text{V}, I_C=0$	(-)67	(-)88	(-)125	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)5\text{V}, I_C=(-)5\text{mA}$	70			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10\text{V}, I_C=(-)5\text{mA}$		250 (200)		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		3.7 (5.5)		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)10\text{mA}, I_B=(-)0.5\text{mA}$	(-)0.1	(-)0.3		V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0$	(-)50			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)100\mu\text{A}, R_{BE}=\infty$	(-)50			V

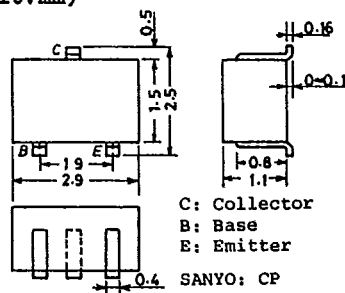
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Marking 2SA1563:RL, 2SC4047:ZY

Electrical Connection



Case Outline 2018A (unit:mm)



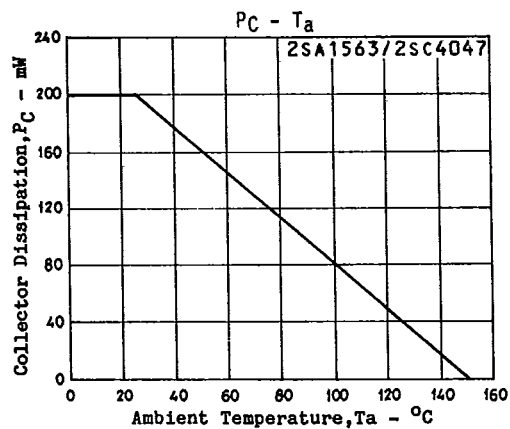
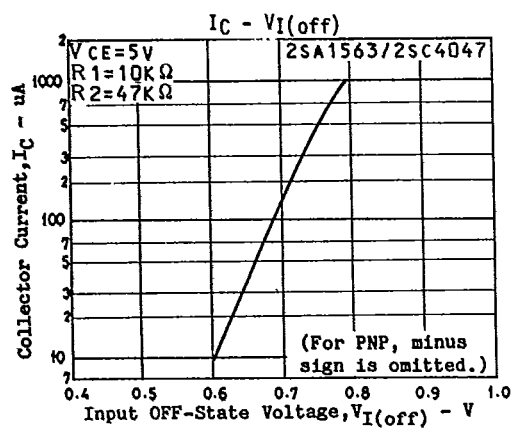
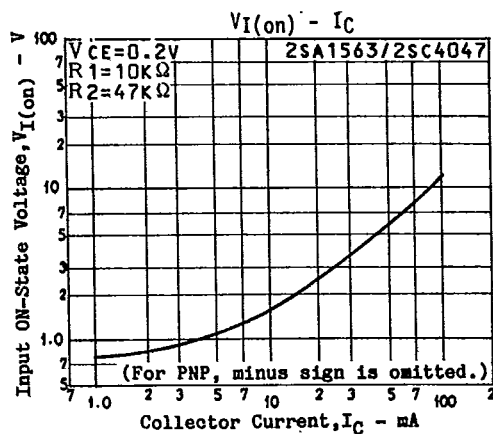
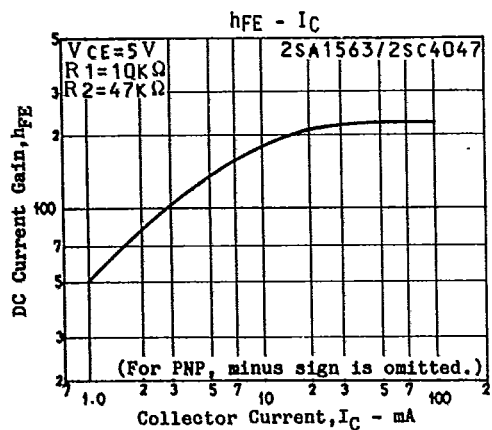
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			min	typ	max	unit
Input OFF-State Voltage	$V_{I(off)}$	$V_{CE}=(-)5V, I_C=(-)100\mu A$	$(-)0.5$	$(-)0.7$	$(-)0.9$	V
Input ON-State Voltage	$V_{I(on)}$	$V_{CE}=(-)0.2V, I_C=(-)5mA$	$(-)0.7$	$(-)1.0$	$(-)2.0$	V
Input Resistance	R_1		7	10	13	kohm
Resistance Ratio	R_1/R_2		0.193	0.213	0.234	

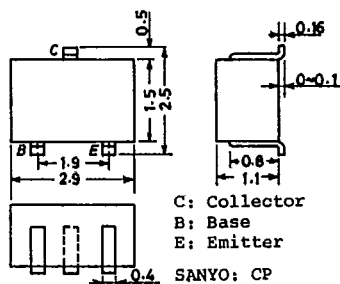


T-91-20

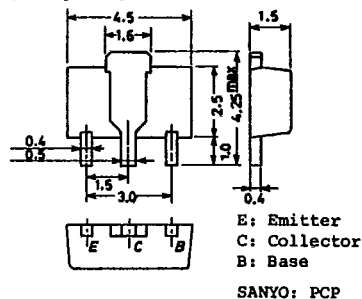
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- All of Sanyo surface mount transistor case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

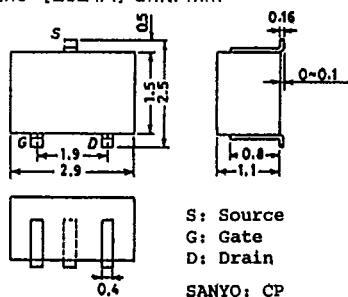
Case Outline—[2018A] unit: mm



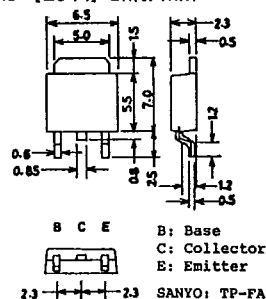
Case Outline—[2038] unit: mm



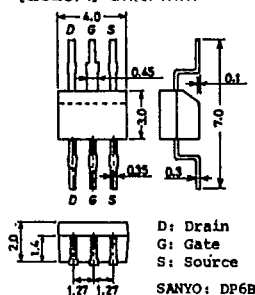
Case Outline—[2024A] unit: mm



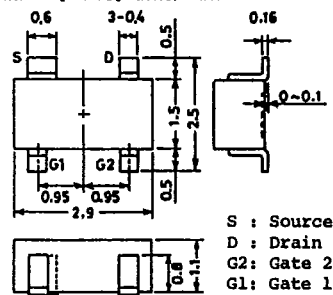
Case Outline—[2044] unit: mm



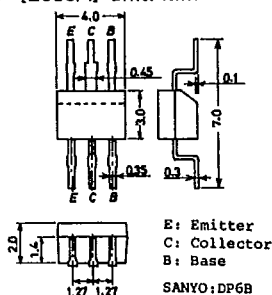
Case Outline—[2028A] unit: mm



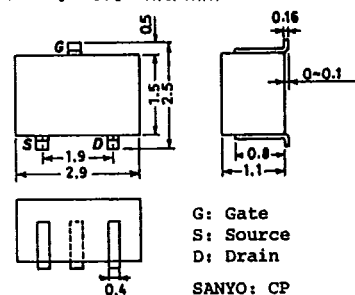
Case Outline—[2046] unit: mm



Case Outline—[2030A] unit: mm

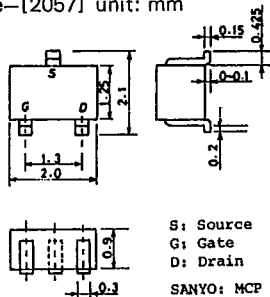


Case Outline—[2050] unit: mm

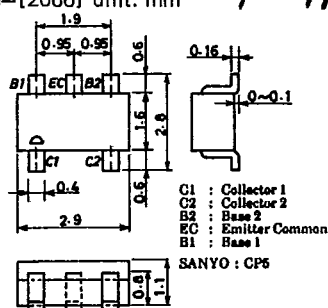


T-91-20

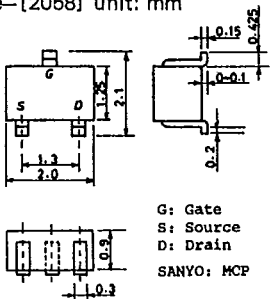
Case Outline—[2057] unit: mm



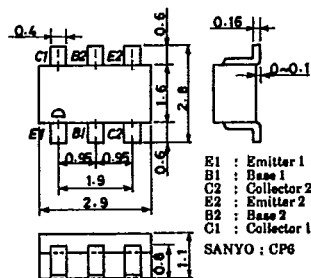
Case Outline—[2066] unit: mm



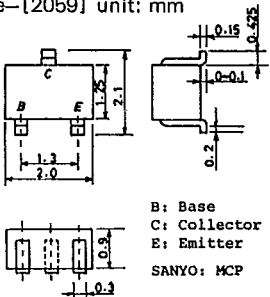
Case Outline—[2058] unit: mm



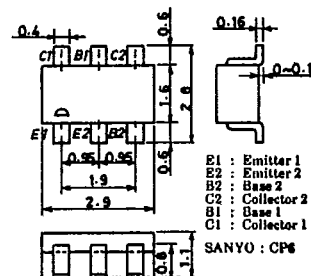
Case Outline—[2067] unit: mm



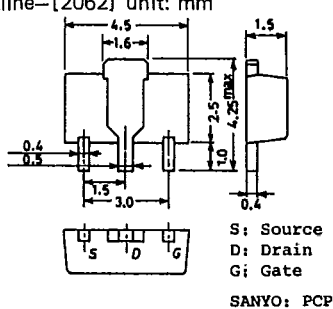
Case Outline—[2059] unit: mm



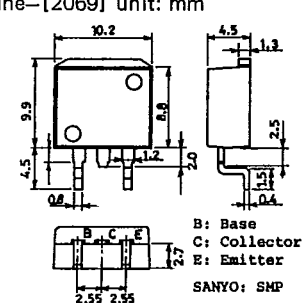
Case Outline—[2068] unit: mm



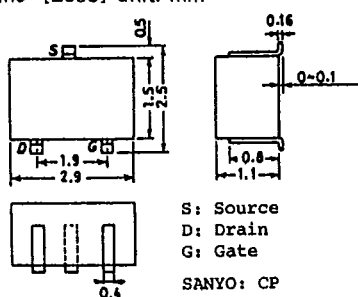
Case Outline—[2062] unit: mm



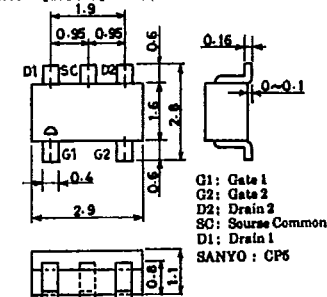
Case Outline—[2069] unit: mm



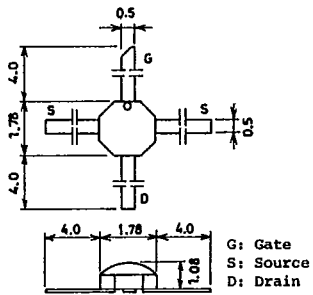
Case Outline—[2065] unit: mm



Case Outline—[2070] unit: mm

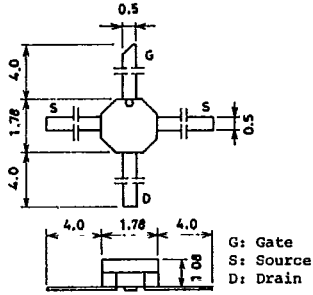


Case Outline-[2071] unit: mm



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Case Outline-[2072] unit: mm



Case Outline-[2073] unit: mm

