

2SC4003

2044

NPN Triple Diffused Planar
Silicon Transistor

T-29-23

High-Voltage Driver Applications

©2959A

Features

- High breakdown voltage
- Adoption of MBIT process
- Excellent h_{FE} linearity

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

Collector to Base Voltage	V_{CBO}	400	V
Collector to Emitter Voltage	V_{CEO}	400	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current	I_C	200	mA
Peak Collector Current	i_{cp}	400	mA
Collector Dissipation	P_C	1	W
Junction Temperature	T_j	10	W
Storage Temperature	T_{stg}	150	$^\circ\text{C}$
		-55 to +150	$^\circ\text{C}$

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

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 300\text{V}, I_E = 0$			0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = 10\text{V}, I_C = 50\text{mA}$	60*		200*	
Gain-Bandwidth Product	f_T	$V_{CE} = 30\text{V}, I_C = 10\text{mA}$		70		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$			0.6	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$			1.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	400			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, R_{BE} = \infty$	400			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	5			V

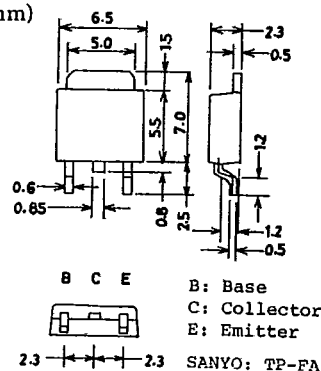
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*: The 2SC4003 is classified by 50mA h_{FE} as follows :

60	D	120	100	E	200
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Case Outline 2044

(unit: mm)



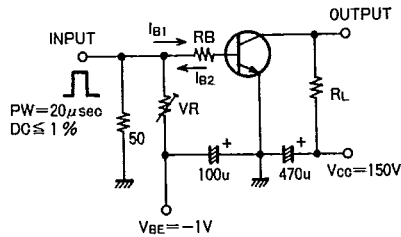
25C4003

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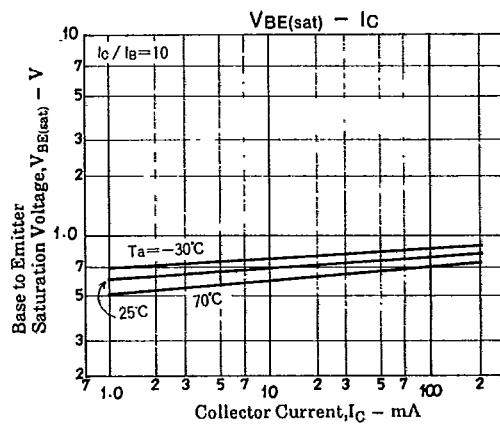
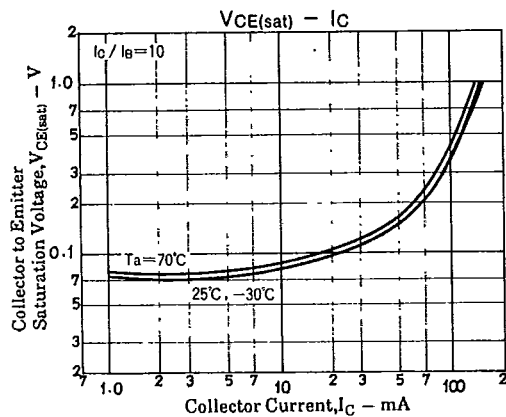
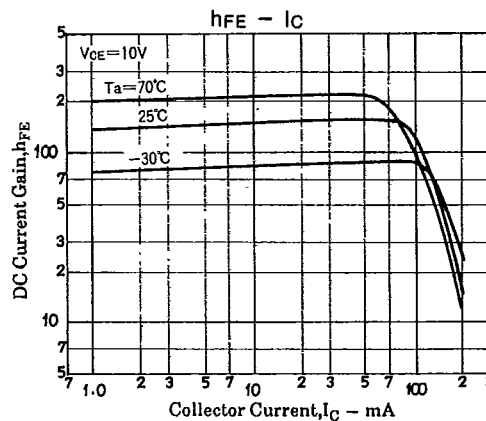
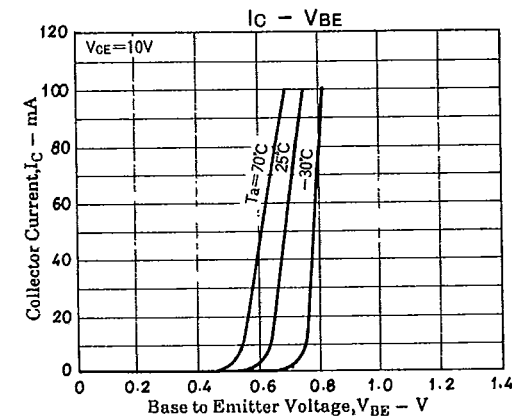
			min	typ	max	unit
Output Capacitance	C_{ob}	$V_{CB}=30V, f=1MHz$		4		pF
Reverse Transfer Capacitance	C_{re}	$V_{CB}=30V, f=1MHz$		3		pF
Turn-ON Time	t_{on}	See specified Test Circuit.	0.25			μs
Turn-OFF Time	t_{off}		5.0			μs

Switching Time Test Circuit



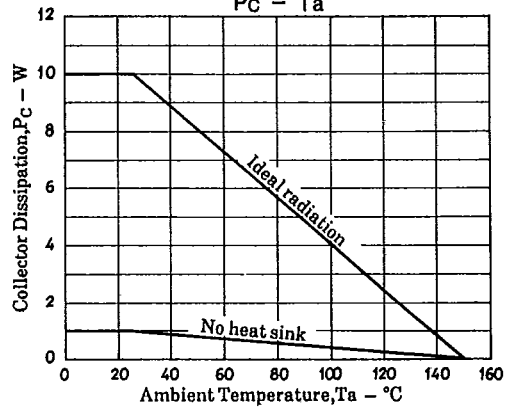
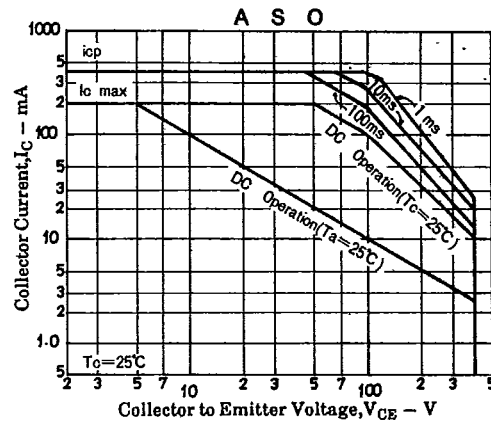
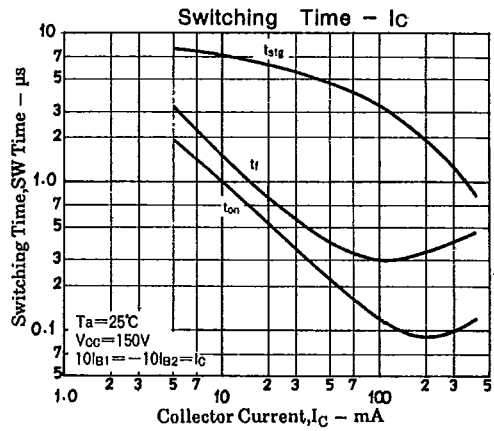
$$10I_{B1} = -10I_{B2} = I_C = 50mA$$

$$R_L = 3k\Omega, R_B = 200\Omega \text{ at } I_C = 50mA$$



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T=29-23

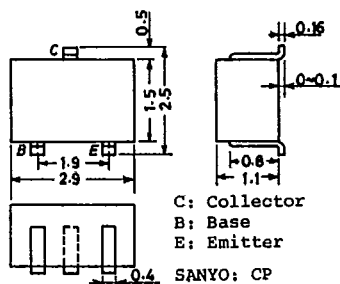


T-91-20

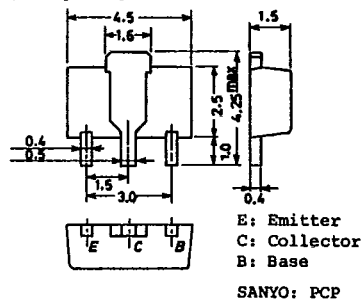
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- 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.

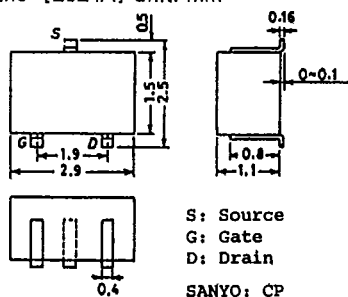
Case Outline—[2018A] unit: mm



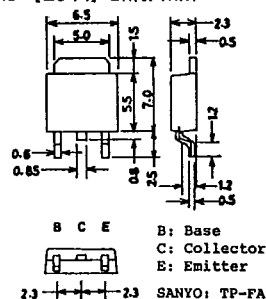
Case Outline—[2038] unit: mm



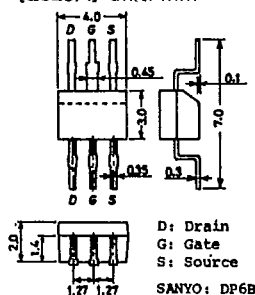
Case Outline—[2024A] unit: mm



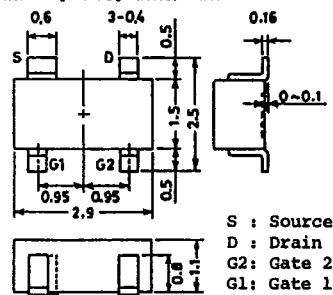
Case Outline—[2044] unit: mm



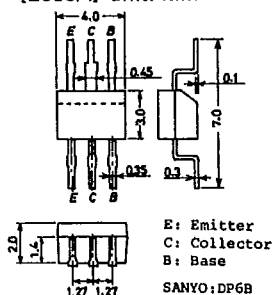
Case Outline—[2028A] unit: mm



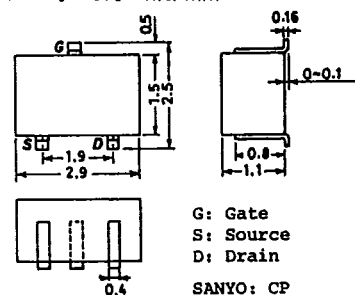
Case Outline—[2046] unit: mm



Case Outline—[2030A] unit: mm

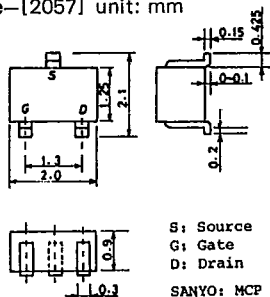


Case Outline—[2050] unit: mm

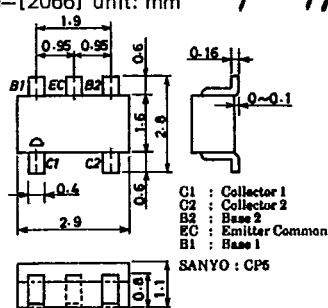


T-91-20

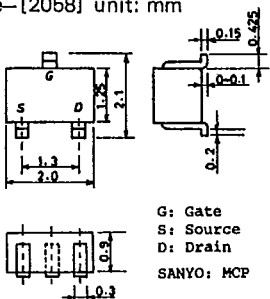
Case Outline—[2057] unit: mm



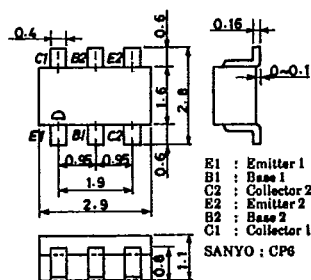
Case Outline—[2066] unit: mm



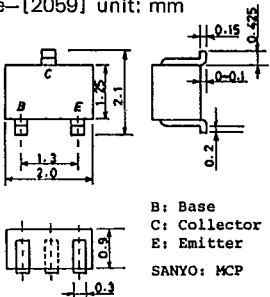
Case Outline—[2058] unit: mm



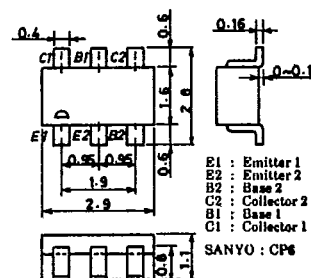
Case Outline—[2067] unit: mm



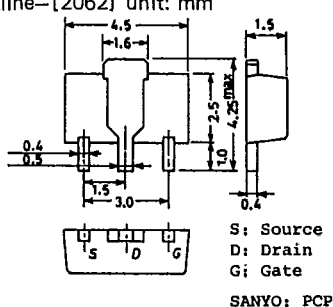
Case Outline—[2059] unit: mm



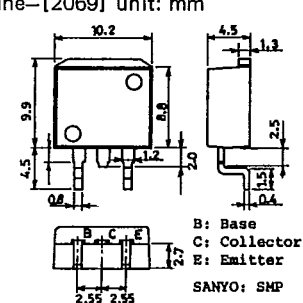
Case Outline—[2068] unit: mm



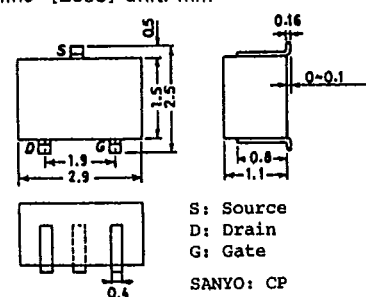
Case Outline—[2062] unit: mm



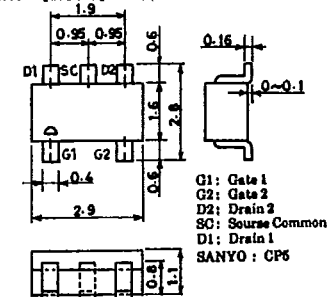
Case Outline—[2069] unit: mm



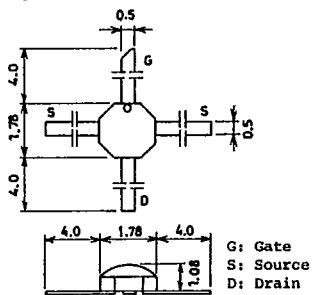
Case Outline—[2065] unit: mm



Case Outline—[2070] unit: mm

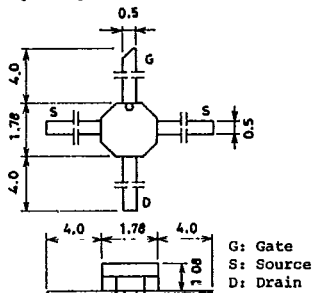


Case Outline-[2071] unit: mm



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Case Outline-[2072] unit: mm



Case Outline-[2073] unit: mm

