

**SANYO**

No.3180B

**2SA1764**

PNP Epitaxial Planar Silicon Transistor

High-Speed Switching Applications

**Features**

- Fast switching speed
- Low collector saturation voltage
- High gain-bandwidth product
- Small collector capacitance
- Small-sized package permitting the 2SA1764-applied sets to be made small and slim
- Complementary pair with the 2SC4453

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

			unit
Collector to Base Voltage	$V_{CB0}$	-15	V
Collector to Emitter Voltage	$V_{CEO}$	-15	V
Emitter to Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-200	mA
Collector Current(Pulse)	$I_{CP}$	-500	mA
Base Current	$I_B$	-40	mA
Collector Dissipation	$P_C$	200	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

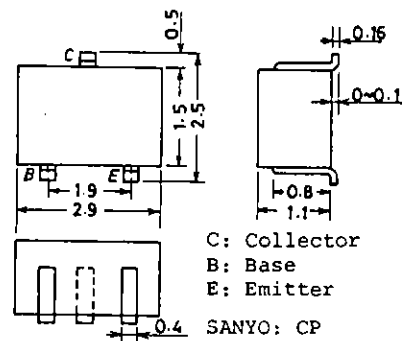
**Electrical Characteristics at  $T_a = 25^\circ\text{C}$** 

			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = -8\text{V}, I_E = 0$			-0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = -3\text{V}, I_C = 0$			-0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = -1\text{V}, I_C = -10\text{mA}$	50	80	140	
Gain-Bandwidth Product	$f_T$	$V_{CE} = -10\text{V}, I_C = -10\text{mA}$	450	1000		MHz
Output Capacitance	$c_{ob}$	$V_{CB} = -5\text{V}, f = 1\text{MHz}$		1.8	3.0	pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -1\text{mA}$	-0.07	-0.20		V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = -10\text{mA}, I_B = -1\text{mA}$	-0.80	-0.90		V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0$	-15			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, R_{BE} = \infty$	-15			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0$	-5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		11		ns
Storage Time	$t_{stg}$	"		21		ns
Turn-OFF Time	$t_{off}$	"		19		ns

Marking : FS

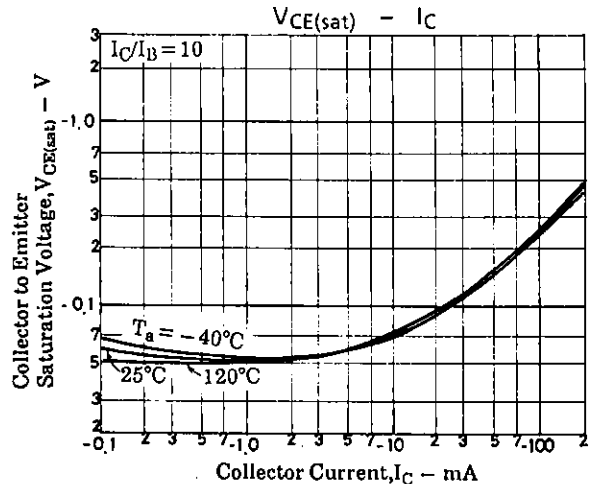
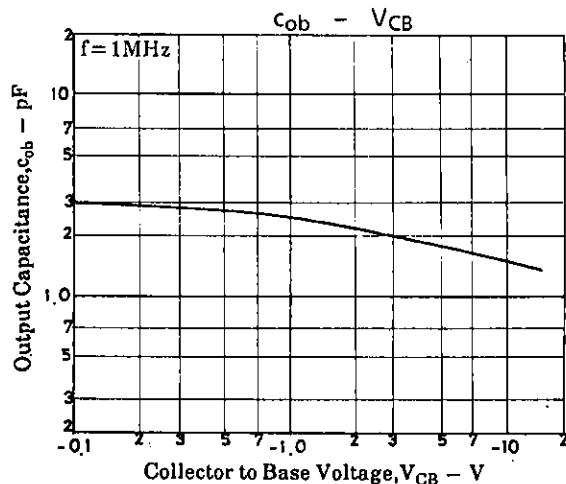
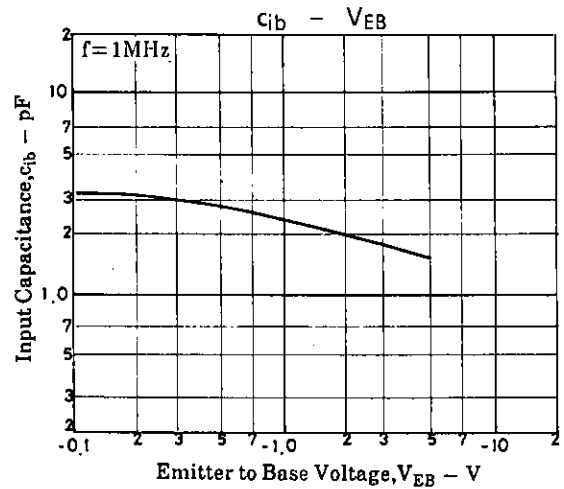
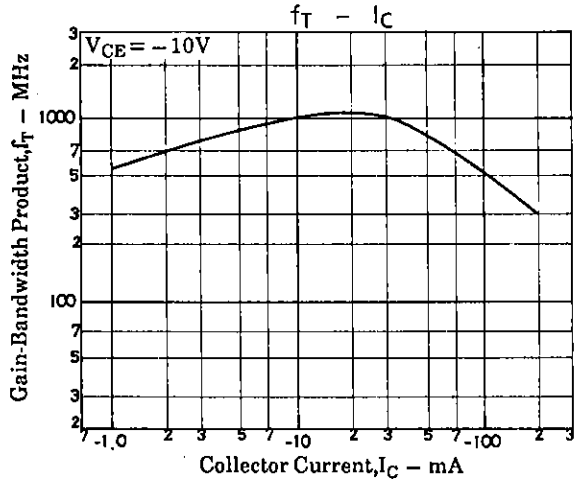
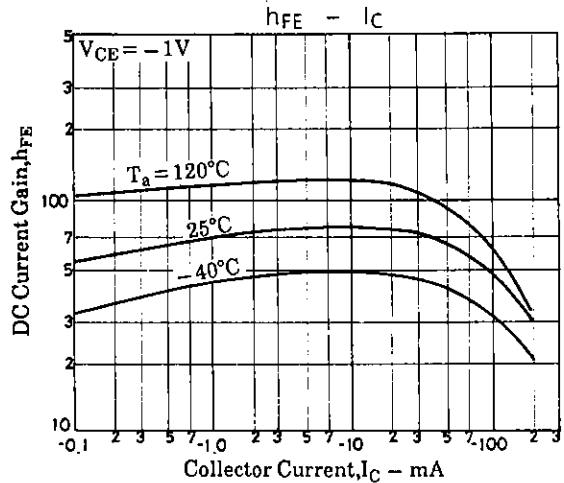
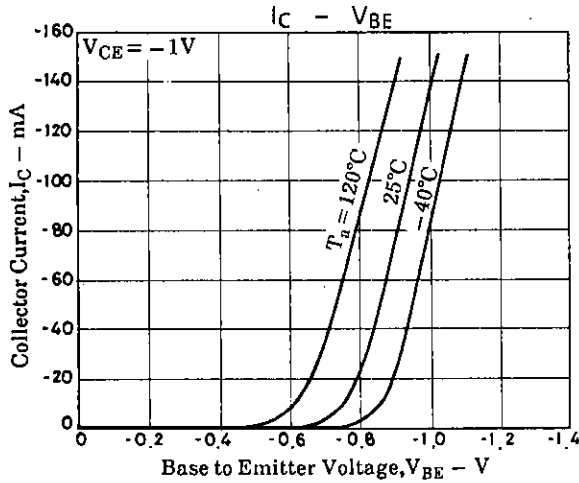
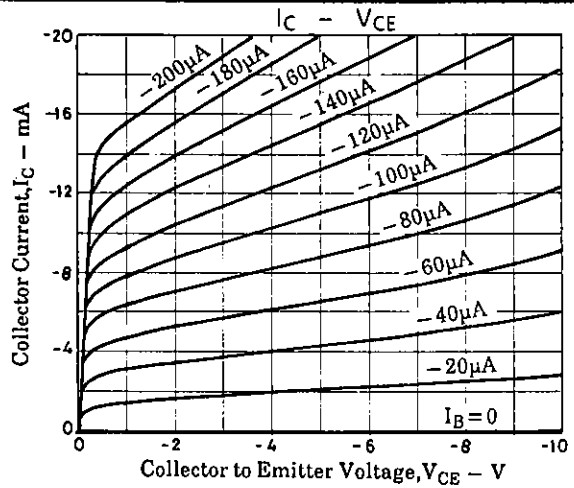
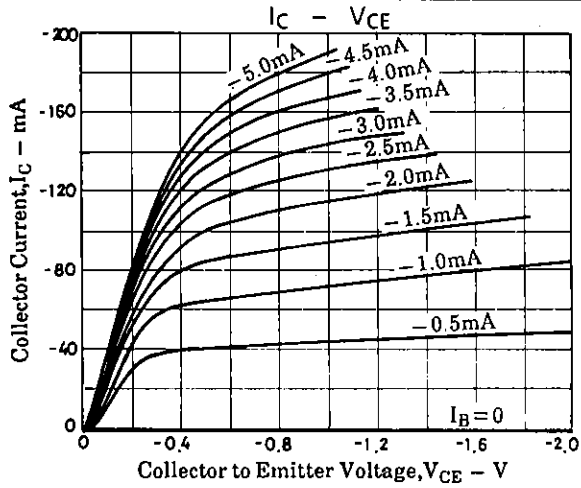
**Package Dimensions 2018A**

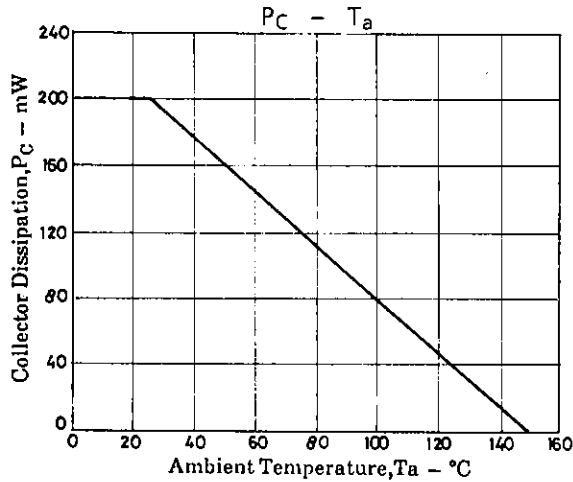
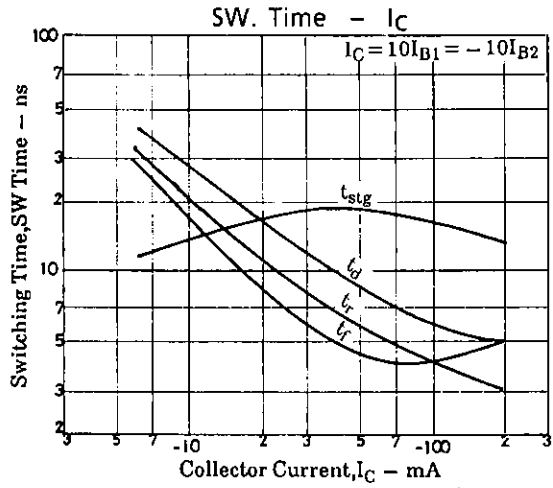
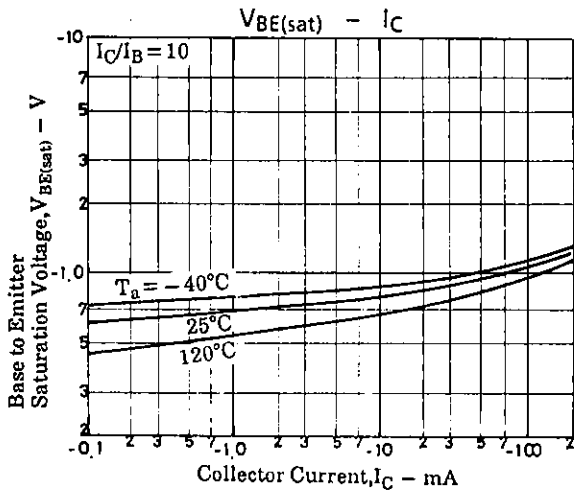
(unit : mm)

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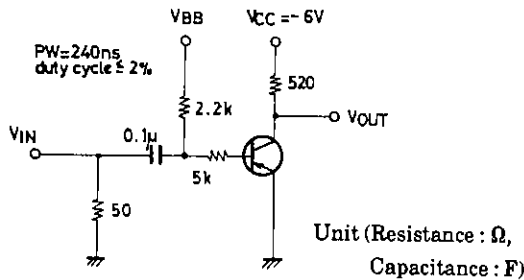
1200MO/6279MO, TS No.3180-1/4



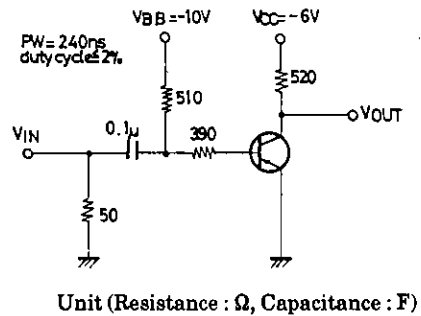


**Switching Time Test Circuits**

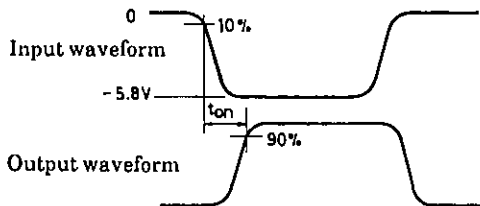
**$t_{on}, t_{off}$  Test Circuit**



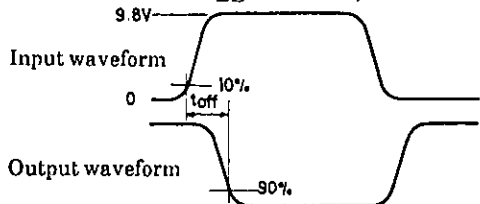
**$t_{stg}$  Test Circuit**



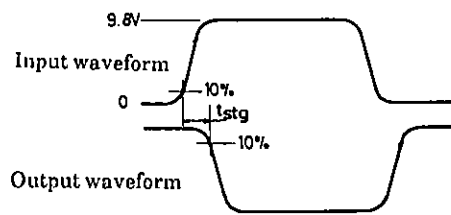
**$t_{on}$  Test Waveform ( $V_{BB} = GND$ )**



**$t_{off}$  Test Waveform ( $V_{BB} = -8.0V$ )**



**$t_{stg}$  Test Waveform**



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