Ordering number: EN 3520

SANYO

No.3520

2SA1784/2SC4644

PNP Epitaxial Planar Silicon Transistor
NPN Triple Diffused Planar Silicon Transistor

High Voltage Driver Applications

Features

- Adoption of MBIT process
- High breakdown voltage ($V_{CEO} \geqq 400V$)
- Excellent linearity of h_{FE}

( ) : 2SA1784

Absolute Maximum Ratings at Ta = 25°C

			unit
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
Collector Current(Pulse)	I_{CP}	(−)400	mA
Collector Dissipation	P_C	1	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55 to +150	°C

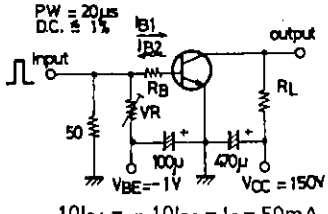
Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=(−)300V, I_E=0			(−)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(−)4V, I_C=0			(−)0.1	μA
DC Current Gain	h_{FE}	V_{CE}=(−)10V, I_C=(−)50mA	60*		200*	
Gain-Bandwidth Product	f_T	V_{CE}=(−)30V, I_C=(−)10mA		70		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=(−)50mA, I_B=(−)5mA		(−0.8)0.6		V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=(−)50mA, I_B=(−)5mA			(−)1.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=(−)10μA, I_E=0	(−)400			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=(−)1mA, R_{BE}=∞	(−)400			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=(−)10μA, I_C=0	(−)5			V
Output Capacitance	c_{ob}	V_{CB}=(−)30V, f=1MHz		(5)4		pF
Reverse Transfer Capacitance	c_{re}	V_{CB}=(−)30V, f=1MHz		(4)3		pF
Turn-ON Time	t_{on}	See specified Test Circuit.		0.25		μs
Turn-OFF Time	t_{off}	See specified Test Circuit.		5.0		μs

*: The 2SA1784/2SC4644 are classified by 50mA h_{FE} as follows:

60 D 120	100 E 200

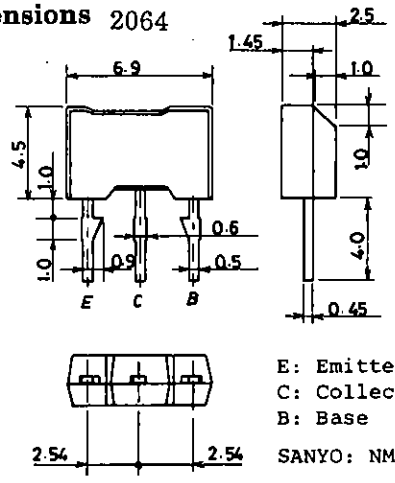
Switching Time Test Circuit



$10I_{B1} = -10I_{B2} = I_C = 50mA$
$R_L = 3k\Omega$, $R_B = 200\Omega$, at $I_C = 50mA$
PNPの場合 極性逆

Unit(Resistance : Ω , Capacitance : F)

Package Dimensions 2064
(unit: mm)



E: Emitter
C: Collector
B: Base
SANYO: NMP

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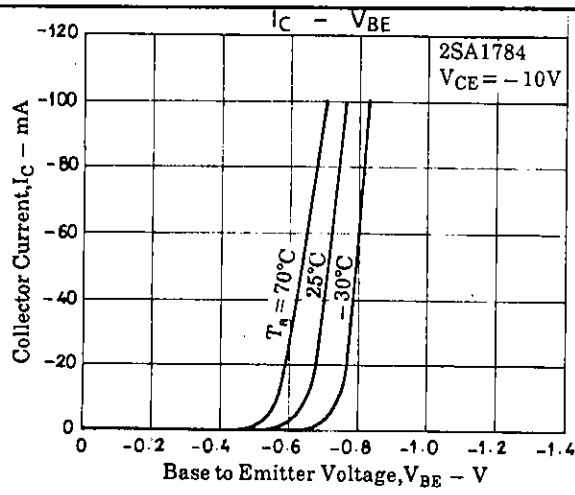
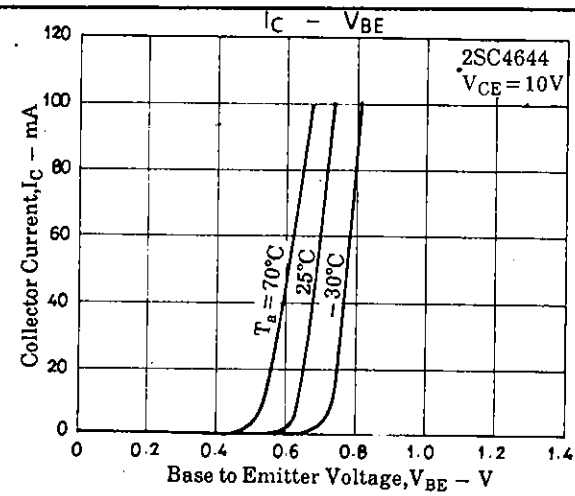

I_C – V_{BE}
2SA1784
V_{CE} = –10V
T_a = 70°C
25°C
–30°C
Collector Current, I_C – mA
Base to Emitter Voltage, V_{BE} – V


I_C – V_{BE}
2SC4644
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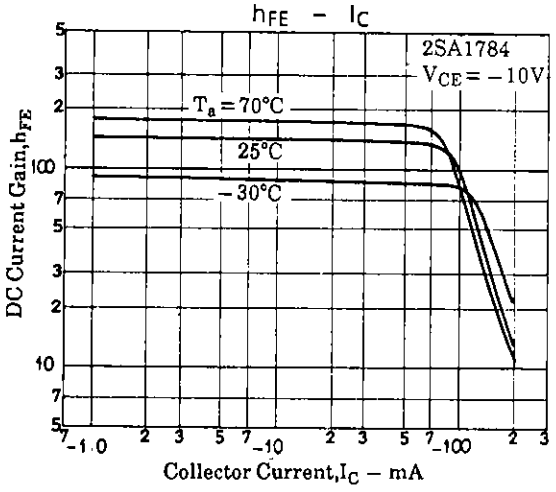
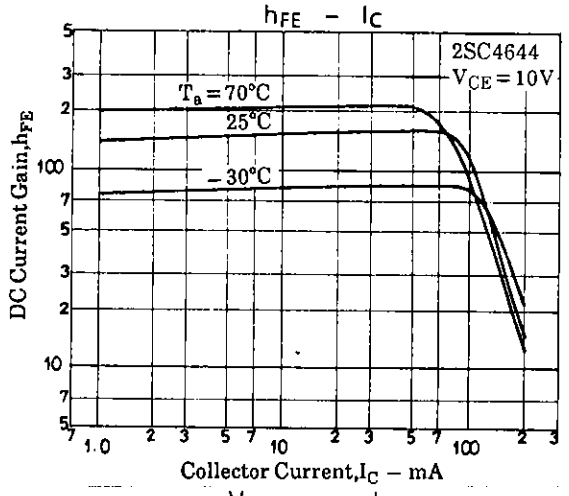
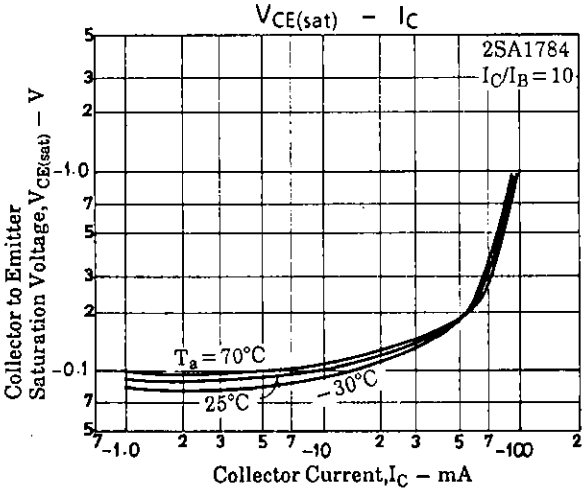
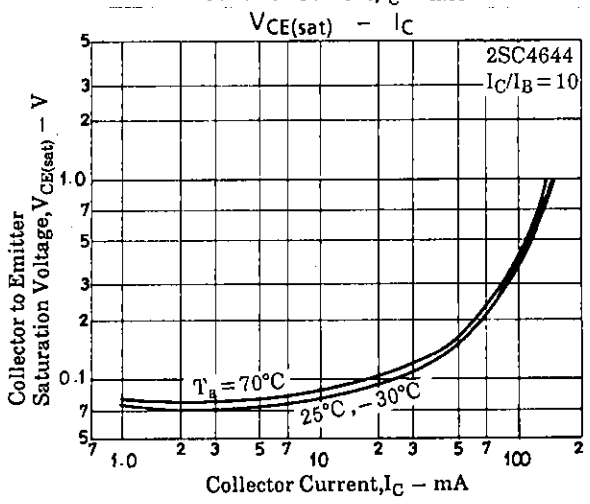
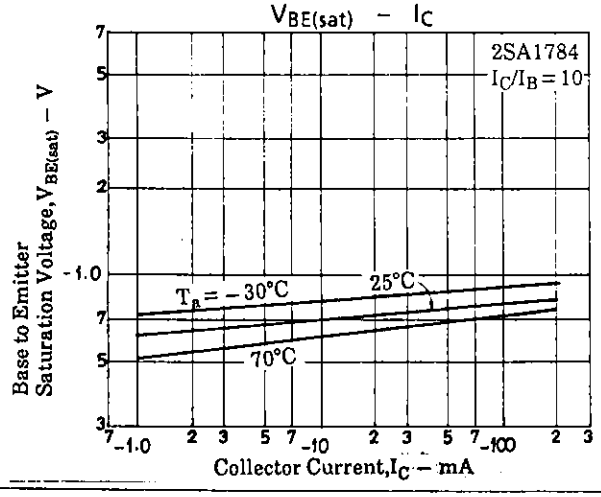
Collector Current, I_C – mA
Base to Emitter Voltage, V_{BE} – V

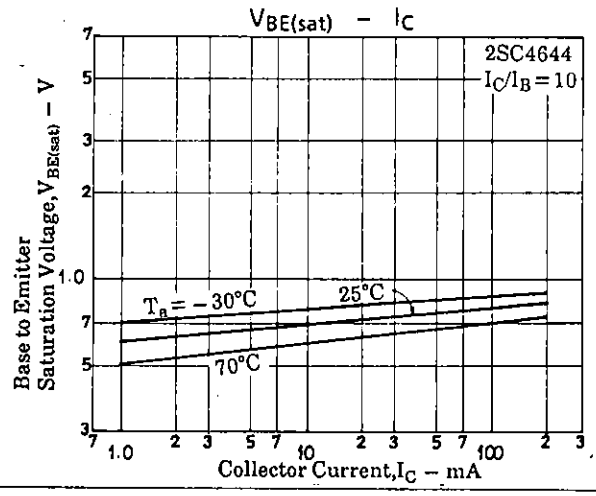

h_{FE} – I_C
2SA1784
V_{CE} = –10V
T_a = 70°C
25°C
–30°C
DC Current Gain, h_{FE}
Collector Current, I_C – mA


h_{FE} – I_C
2SC4644
V_{CE} = 10V
T_a = 70°C
25°C
–30°C
DC Current Gain, h_{FE}
Collector Current, I_C – mA


$V_{CE(sat)}$ – I_C
2SA1784
I_C/I_B = 10
T_a = 70°C
25°C
–30°C
Collector to Emitter Saturation Voltage, $V_{CE(sat)}$ – V
Collector Current, I_C – mA


$V_{CE(sat)}$ – I_C
2SC4644
I_C/I_B = 10
T_a = 70°C
25°C, –30°C
Collector to Emitter Saturation Voltage, $V_{CE(sat)}$ – V
Collector Current, I_C – mA


$V_{BE(sat)}$ – I_C
2SA1784
I_C/I_B = 10
T_a = –30°C
25°C
70°C
Base to Emitter Saturation Voltage, $V_{BE(sat)}$ – V
Collector Current, I_C – mA


$V_{BE(sat)}$ – I_C
2SC4644
I_C/I_B = 10
T_a = –30°C
25°C
70°C
Base to Emitter Saturation Voltage, $V_{BE(sat)}$ – V
Collector Current, I_C – mA