Ordering number : EN3188A

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DATA SHEET

2SA1740 / 2SC4548

PNP Epitaxial Planar Silicon Transistor
NPN Triple Diffuesd Planar Silicon Transistor

High-Voltage Driver Applications

Features

- High breakdown votlage.
- Adoption of MBIT process.
- Excellent h_{FE} linearlity.

Specifications ( ) : 2SA1740

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	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	Mounted on a ceramic board (250mm²×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)300V, I_E=0A			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0A			(–)0.1	μA
DC Current Gain	h_{FE}	V_{CE}=(–)10V, I_C=(–)50mA	60*		200*	

Marking 2SA1740 : AK
2SC4548 : CN

Continued on next page.

*: The 2SA1740 / 2SC4548 are classified by 50mA h_{FE} as follows:

Rank	D	E
h_{FE}	60 to 120	100 to 200

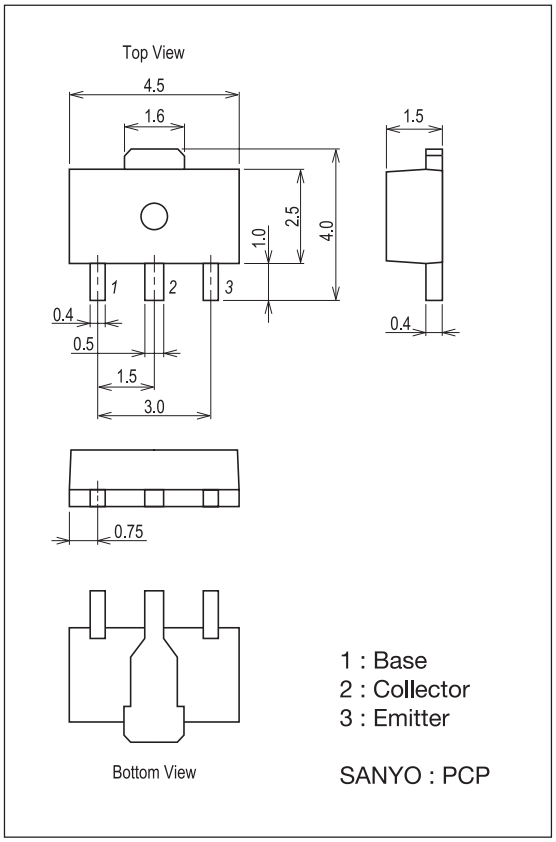
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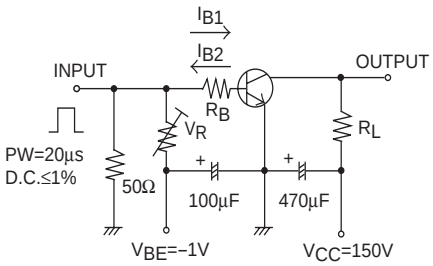
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	V_{CE}=(-)30V, I_C=(-)10mA		70		MHz
Output Capacitance	Cob	V_{CB}=(-)30V, f=1MHz		(5)4		pF
Reverse Transfer Capacitance	Cre	V_{CB}=(-)30V, f=1MHz		(4)3		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=(-)50mA, I_B=(-)5mA			(-0.8)0.6	V
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=(-)50mA, I_B=(-)5mA			(-)1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(-)10μA, I_E=0A	(-)400			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(-)1mA, R_{BE}=∞	(-)400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(-)10μA, I_C=0A	(-)5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		0.25		μs
Turn-DFF Time	t_{off}	See specified Test Circuit.		5.0		μs

Package Dimensions

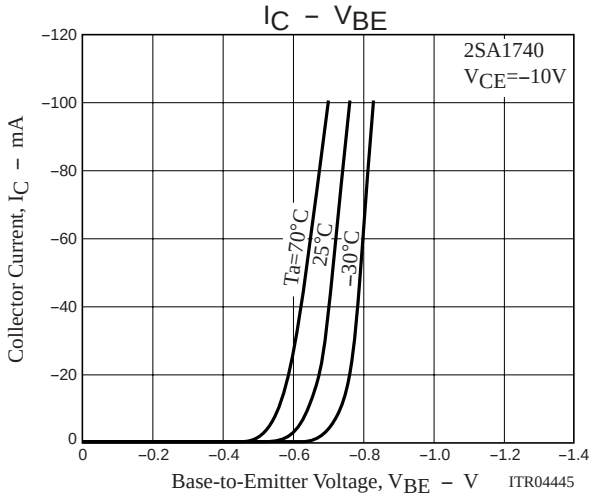
unit : mm (typ)
7007B-004

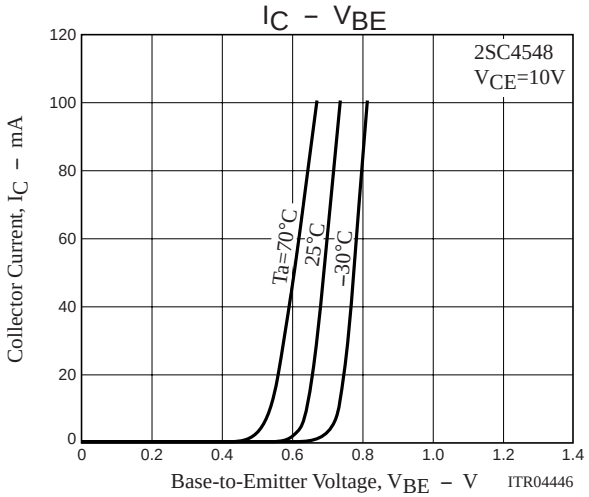


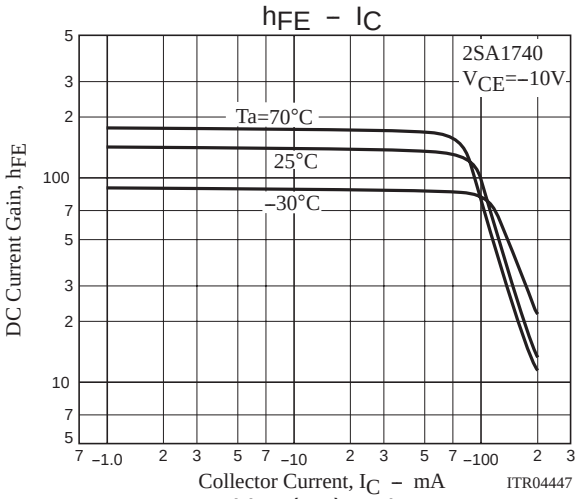
Switching Time Test Circuit

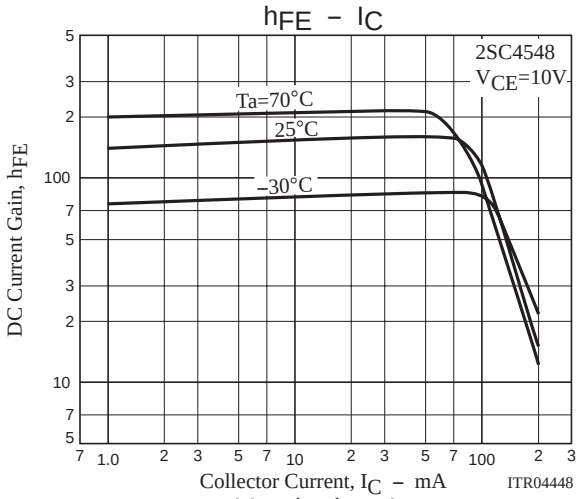


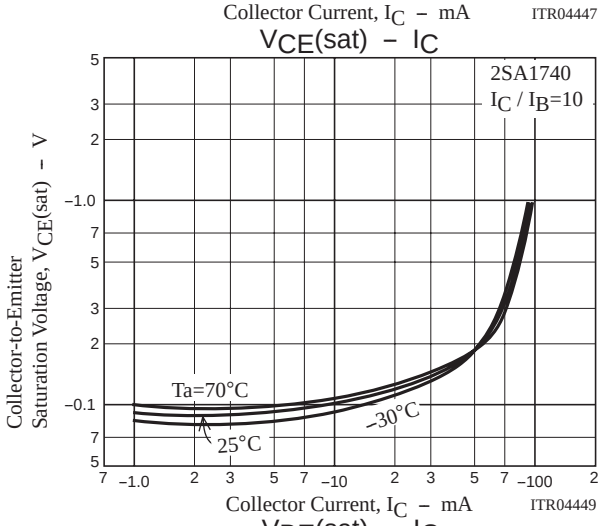
I_C=10I_{B1}= −10I_{B2}=50mA
R_L=3kΩ, R_B=200Ω at I_C=50mA
For PNP, the polarity is reversed

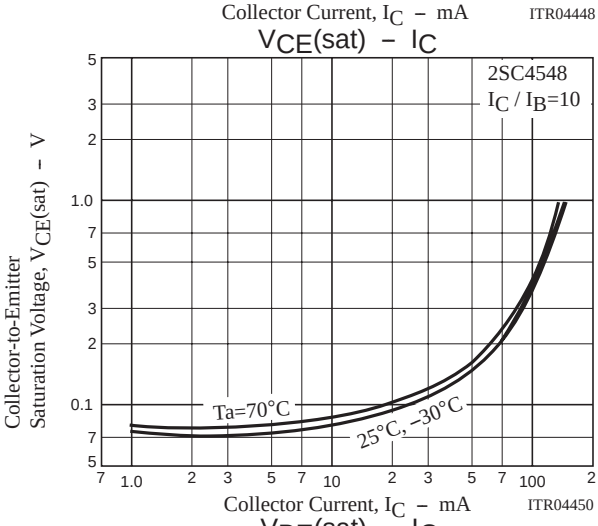


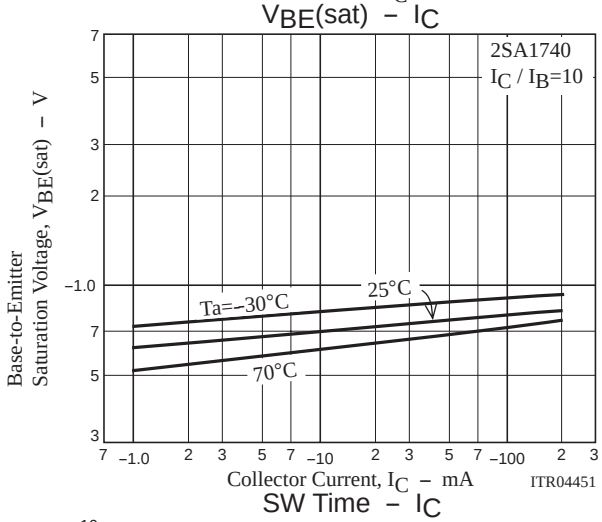


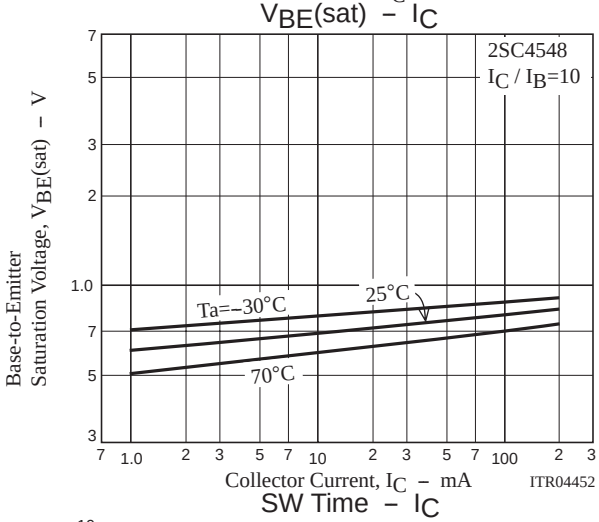

hFE – IC
2SA1740
VCE=–10V
Ta=70°C
25°C
–30°C
DC Current Gain, hFE
Collector Current, IC – mA
ITR04447

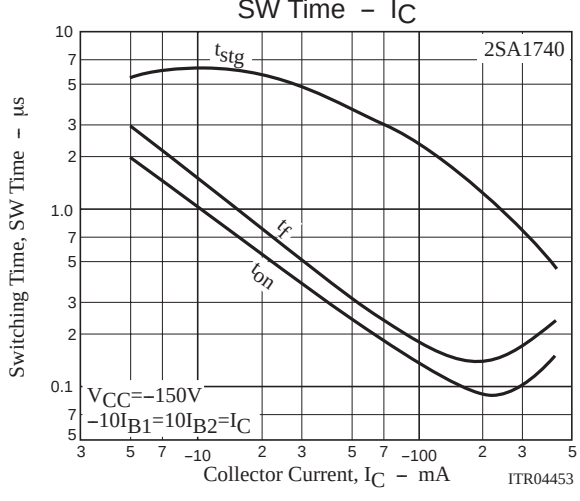

hFE – IC
2SC4548
VCE=10V
Ta=70°C
25°C
–30°C
DC Current Gain, hFE
Collector Current, IC – mA
ITR04448

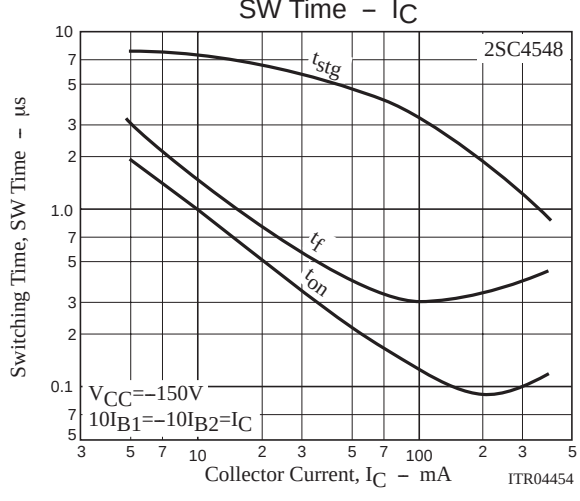

VCE(sat) – IC
2SA1740
IC / IB=10
Ta=70°C
25°C
–30°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR04449

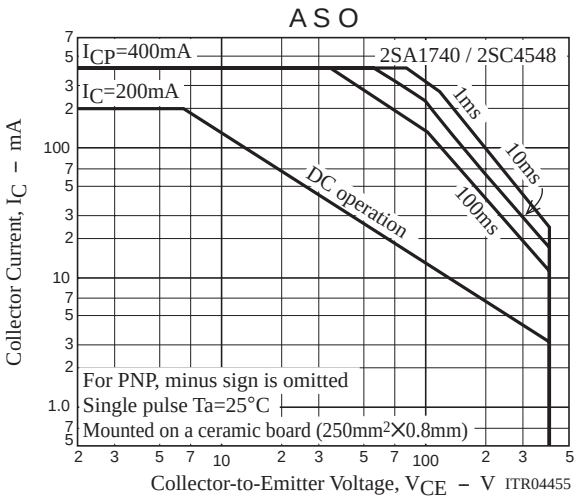

VCE(sat) – IC
2SC4548
IC / IB=10
Ta=70°C
25°C, –30°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR04450

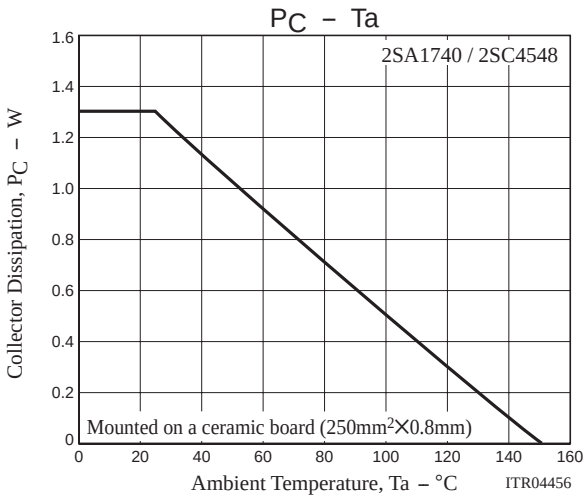

VBE(sat) – IC
2SA1740
IC / IB=10
Ta=–30°C
25°C
70°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – mA
ITR04451


VBE(sat) – IC
2SC4548
IC / IB=10
Ta=–30°C
25°C
70°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – mA
ITR04452


SW Time – IC
2SA1740
tstg
tf
ton
VCC=–150V
–10IB1=10IB2=IC
Switching Time, SW Time – µs
Collector Current, IC – mA
ITR04453


SW Time – IC
2SC4548
tstg
tf
ton
VCC=–150V
10IB1=–10IB2=IC
Switching Time, SW Time – µs
Collector Current, IC – mA
ITR04454





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