Ordering number:ENN3188

PNP Epitaxial Planar Silicon Transistor
NPN Triple Diffuesd Planar Silicon Transistor

2SA1740/2SC4548

High-Voltage Driver Applications

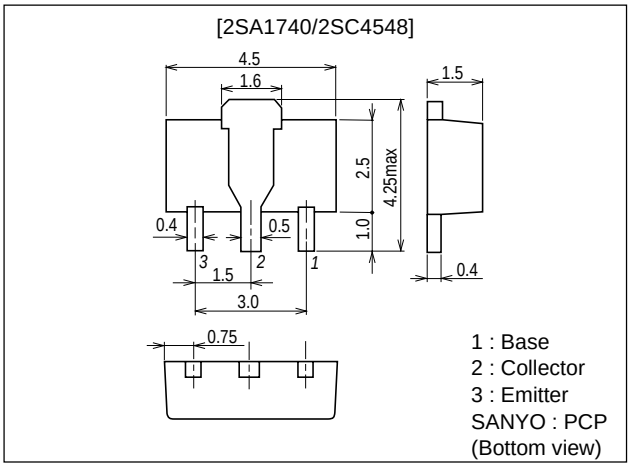
Features

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

Package Dimensions

unit:mm

2038A



( ) : 2SA1740

Specifications

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 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=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*	

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

Continued on next page.

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

Marking 2SA1740 : AK
2SC4548 : CN
h_{FE} rank : D, E

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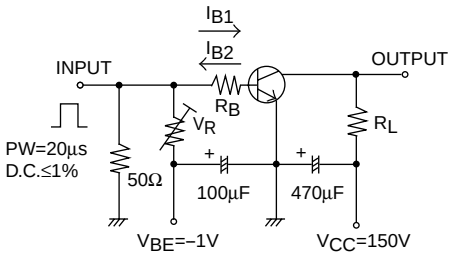
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

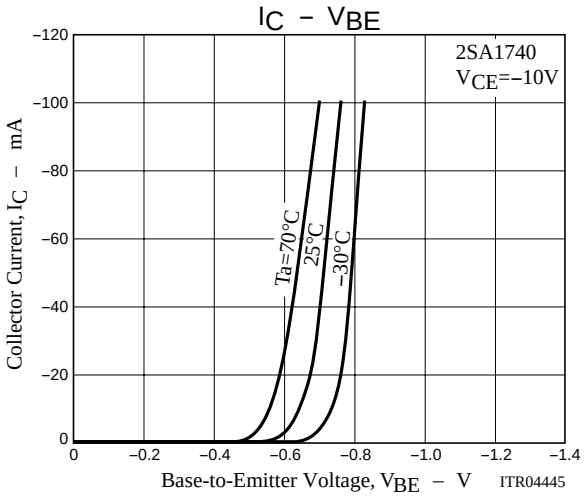
Continued from preceding page.

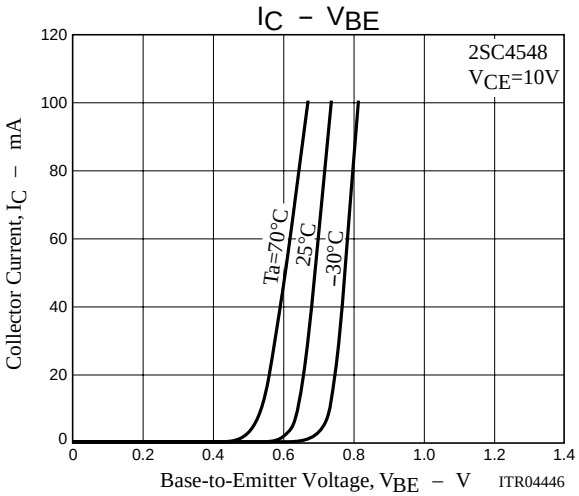
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	V_{CE}=(–)30V, I_C=(–)10mA		70		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)30V, f=1MHz		(5)4		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=(–)30V, f=1MHz		(4)3		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$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

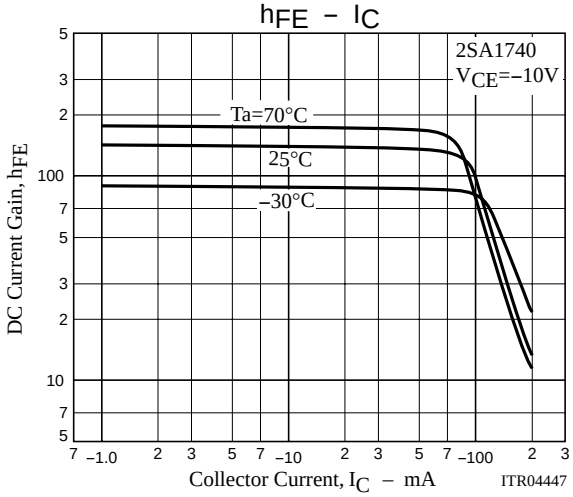
Switching Time Test Circuit

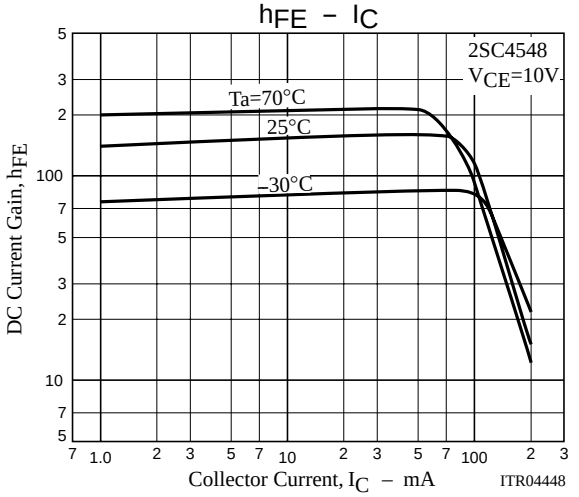


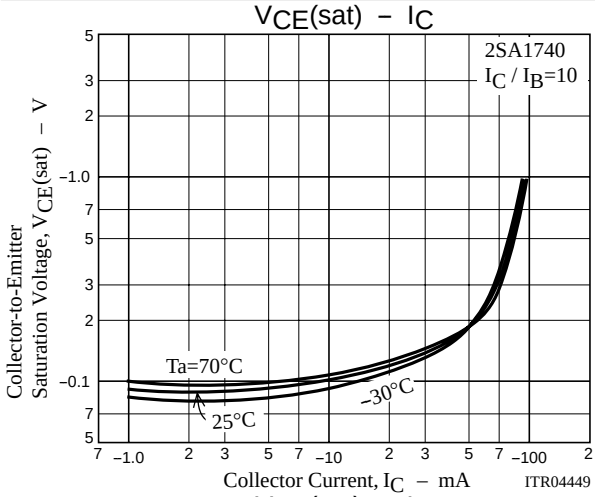
$10I_{B1}$= $-10I_{B2}$= I_C=50mA
R_L=3kΩ, R_B=200Ω at I_C=50mA
For PNP, the polarity is reversed.

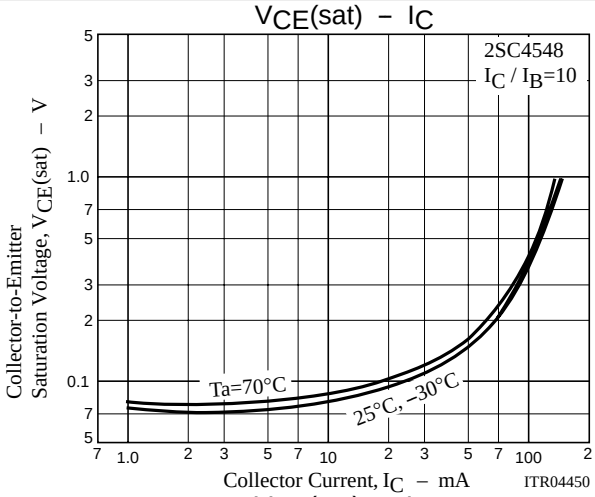


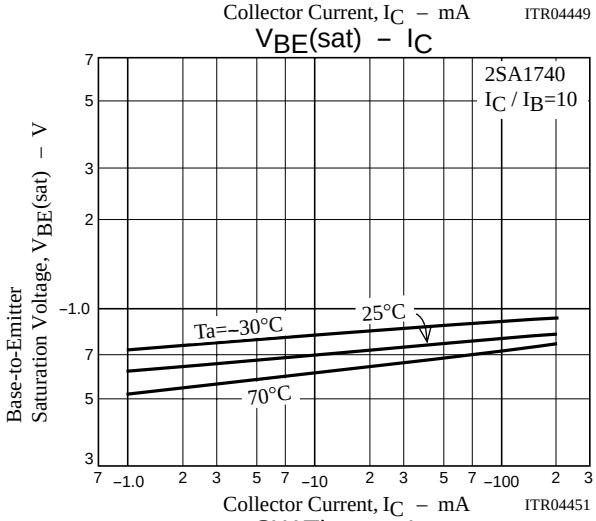


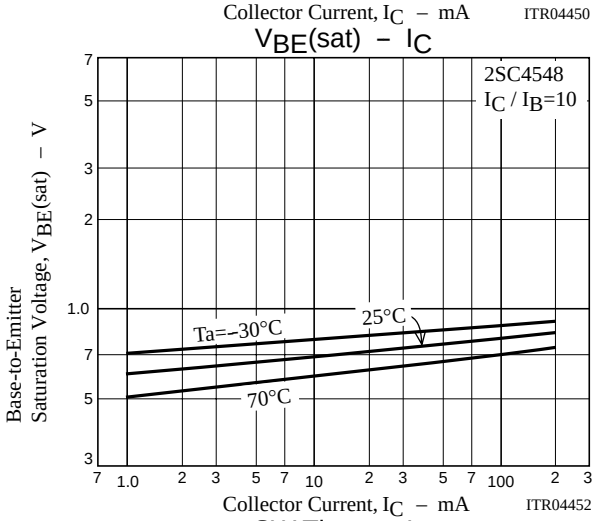


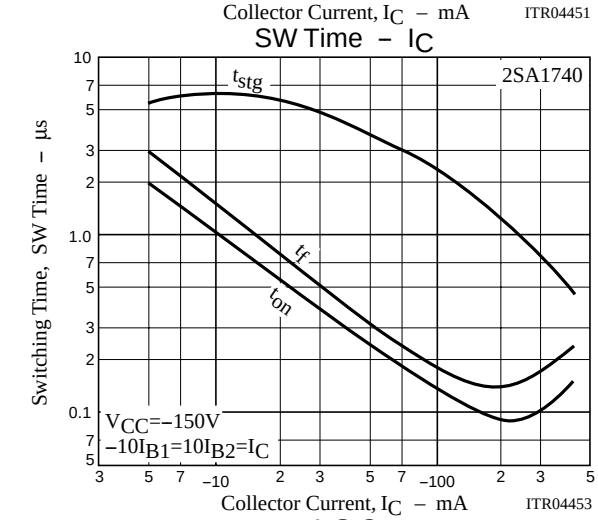


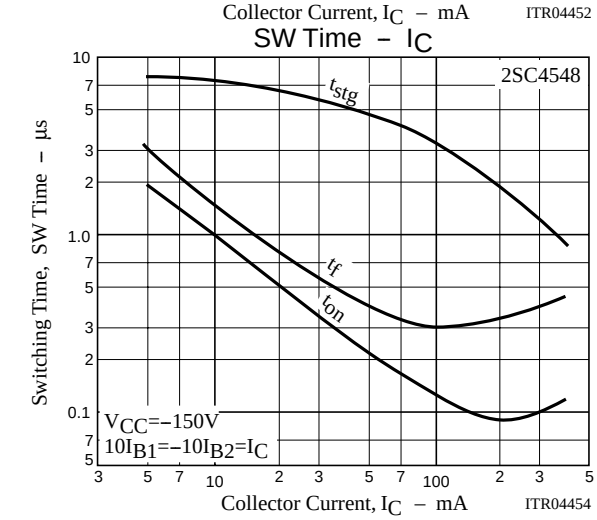

VCE(sat) – IC
2SA1740
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Ta=70°C
25°C
–30°C
Collector Current, IC – mA
ITR04449

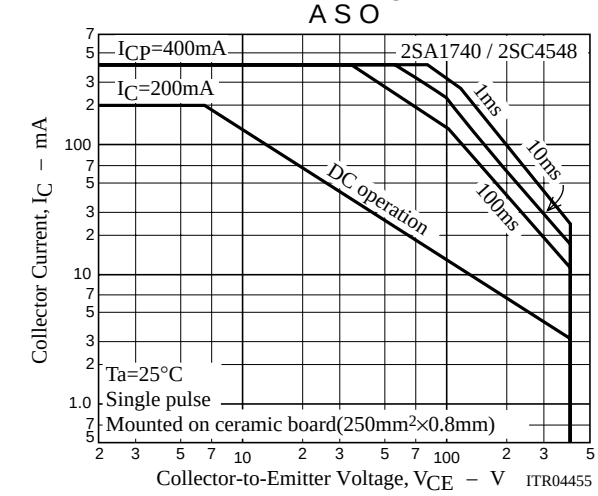

VCE(sat) – IC
2SC4548
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Ta=70°C
25°C, –30°C
Collector Current, IC – mA
ITR04450

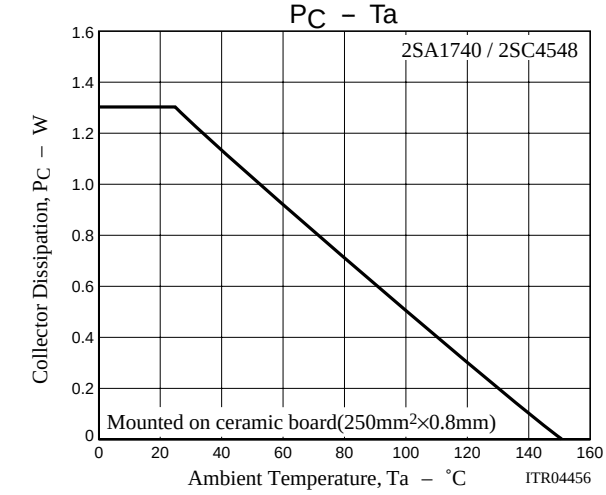

VBE(sat) – IC
2SA1740
IC / IB=10
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Ta=–30°C
25°C
70°C
Collector Current, IC – mA
ITR04451


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


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


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


A S O
ICP=400mA
IC=200mA
2SA1740 / 2SC4548
1ms
10ms
100ms
DC operation
Collector Current, IC – mA
Ta=25°C
Single pulse
Mounted on ceramic board(250mm²×0.8mm)
Collector-to-Emitter Voltage, VCE – V
ITR04455


PC – Ta
2SA1740 / 2SC4548
Collector Dissipation, PC – W
Mounted on ceramic board(250mm²×0.8mm)
Ambient Temperature, Ta – °C
ITR04456