Ordering number:ENN1032B

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1248/2SC3116

160V/700mA Switching Applications

Uses

· Color TV sound output, converters, inverters.

Features

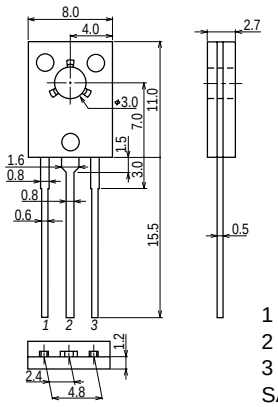
· High breakdown voltage.
· Large current capacity.
· Using MBIT process

Package Dimensions

unit:mm

2009B

[2SA1248/2SC3116]



1 : Emitter
2 : Collector
3 : Base
SANYO : TO-126

( ) : 2SA1248

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)180	V
Collector-to-Emitter Voltage	V_{CEO}		(–)160	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)0.7	A
Collector Current (Pulse)	I_{CP}		(–)1.5	A
Collector Dissipation	P_C		1	W
		Tc=25˚C	10	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}=(–)120V, I_E=0			(–)1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)1.0	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)5V, I_C=(–)100mA	100*		400*	
	$h_{FE}2$	V_{CE}=(–)5V, I_C=(–)10mA	90			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		120		MHz

* : 2SA1248/2SC3116 are classified by follows according to h_{FE} at 100mA.

Continued on next page.

Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

■ Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.

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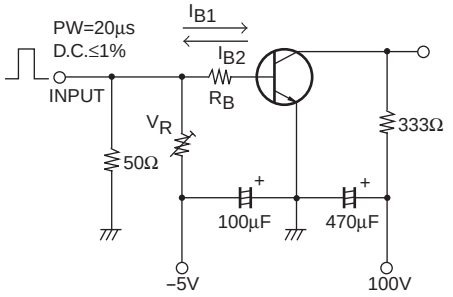
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

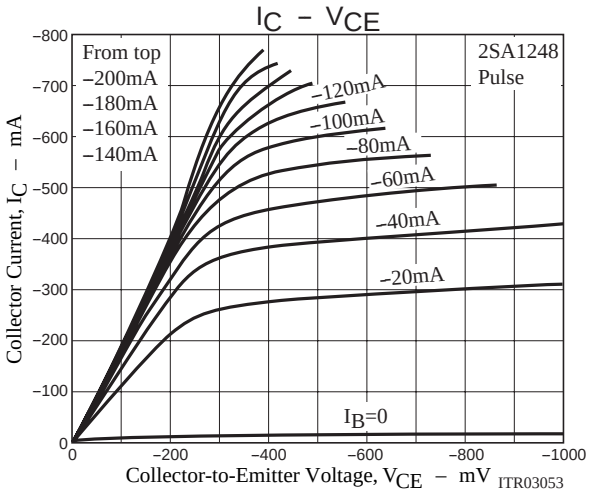
Continued from preceding page.

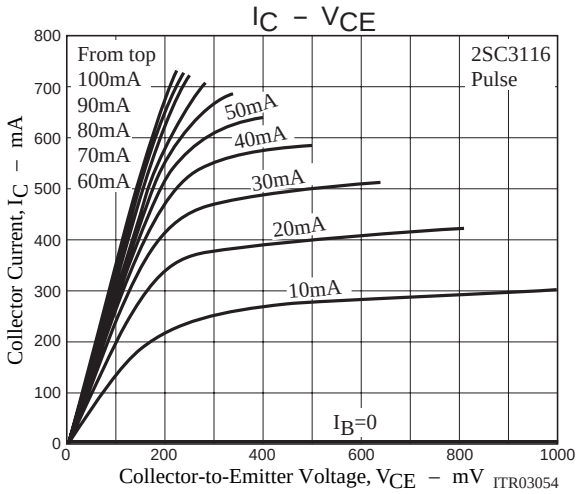
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Common Base Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		8 (11)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)250mA, I_B=(–)25mA		0.12 (–0.2)	0.4 (–0.5)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)250mA, I_B=(–)25mA		(–)0.85	(–)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)10μA, I_E=0	(–)180			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	IC=(–)1mA, R_{BE}=∞	(–)160			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)6			V
Turn-ON Time	t_{on}	See Specified Test Circuit		(60)50		ns
Storage Time	t_{stg}	See Specified Test Circuit		(900) 1000		ns
Fall Time	t_f	See Specified Test Circuit		(60)60		ns

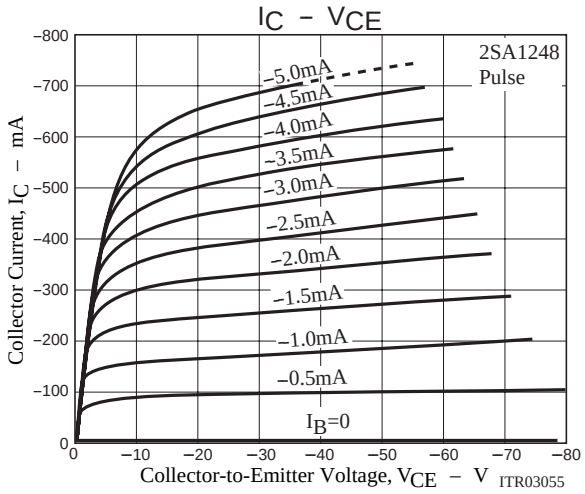
Switching Time Test Circuit

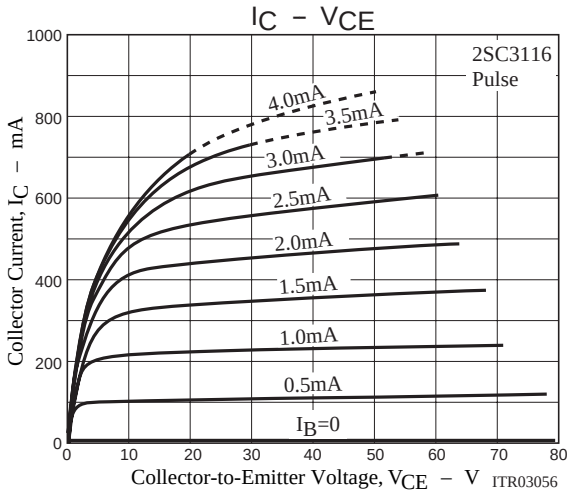


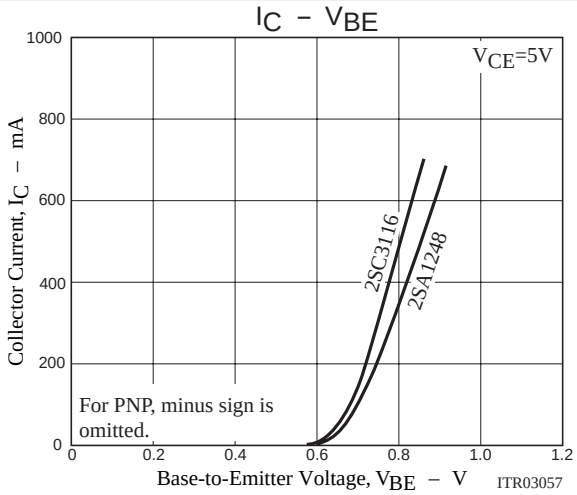
$20I_{B1}=-20I_{B2}=I_C=300mA$
(For PNP, the polarity is reversed.)

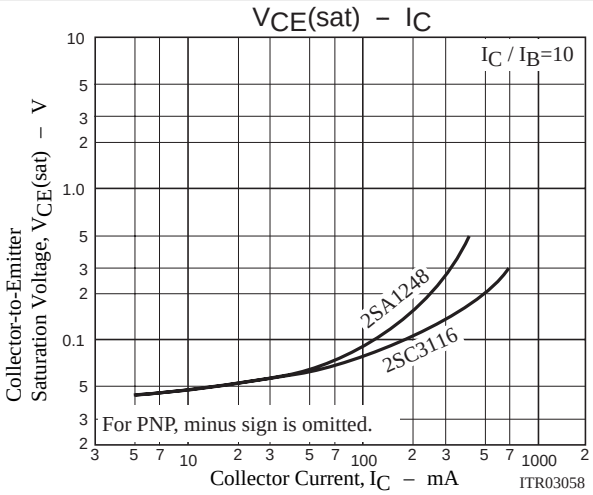


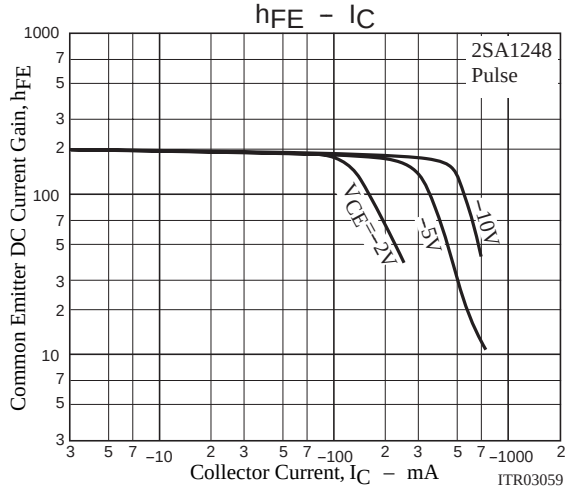


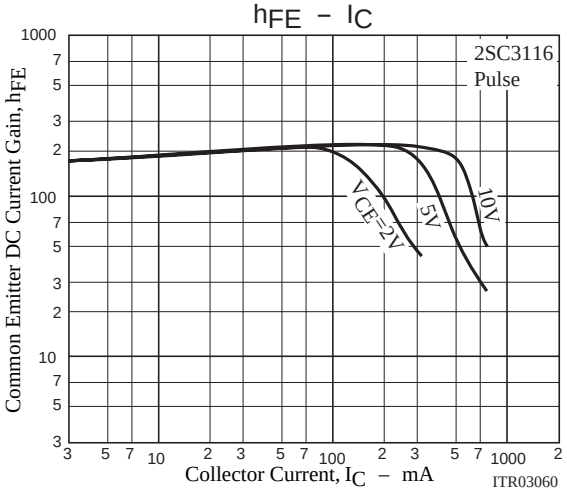


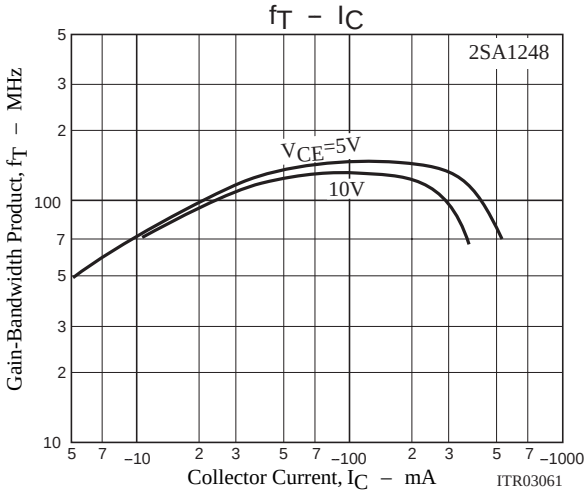


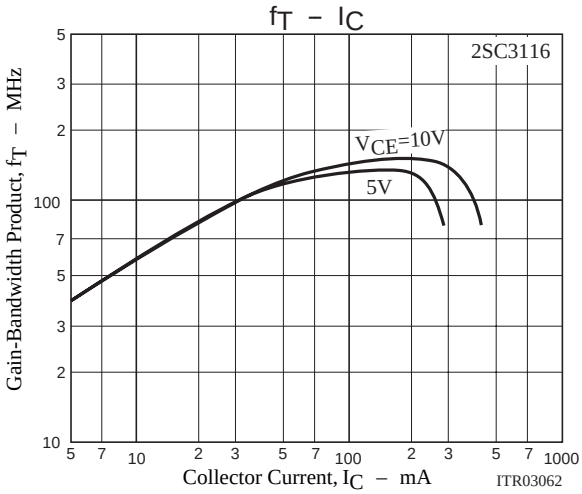

IC – VBE
VCE=5V
Collector Current, IC – mA
Base-to-Emitter Voltage, VBE – V
2SC3116
2SA1248
For PNP, minus sign is omitted.
ITR03057

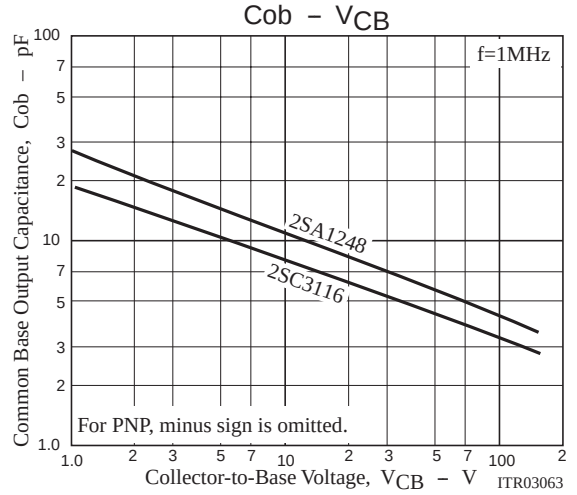

VCE(sat) – IC
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
2SA1248
2SC3116
For PNP, minus sign is omitted.
ITR03058

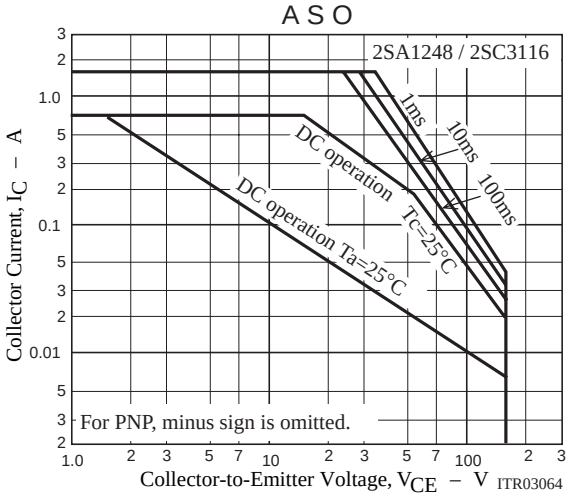

hFE – IC
2SA1248
Pulse
Common Emitter DC Current Gain, hFE
Collector Current, IC – mA
VCE=–2V
–5V
–10V
ITR03059

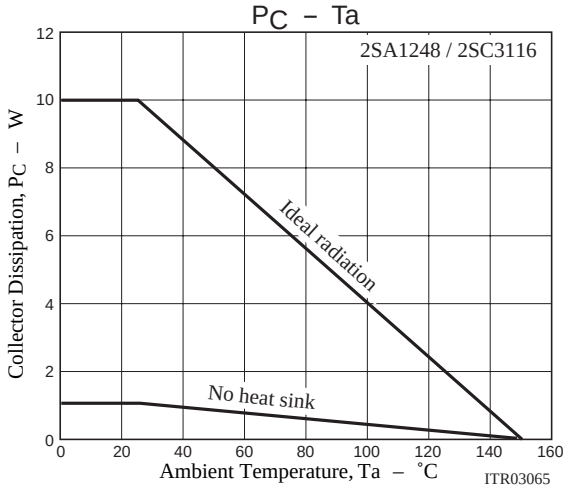

hFE – IC
2SC3116
Pulse
Common Emitter DC Current Gain, hFE
Collector Current, IC – mA
VCE=2V
5V
10V
ITR03060


fT – IC
2SA1248
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
VCE=5V
10V
ITR03061


fT – IC
2SC3116
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
VCE=10V
5V
ITR03062


Cob – VCB
f=1MHz
Common Base Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
2SA1248
2SC3116
For PNP, minus sign is omitted.
ITR03063


A S O
2SA1248 / 2SC3116
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
1ms
10ms
100ms
DC operation Tc=25°C
DC operation Ta=25°C
For PNP, minus sign is omitted.
ITR03064



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