Ordering number:ENN1390D

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1353/2SC3417

Ultrahigh-Definition CRT Display Video Output Applications

Applications

- Ultrahigh-definition CRT display.
- Color TV chroma output, high-voltage driver applications.

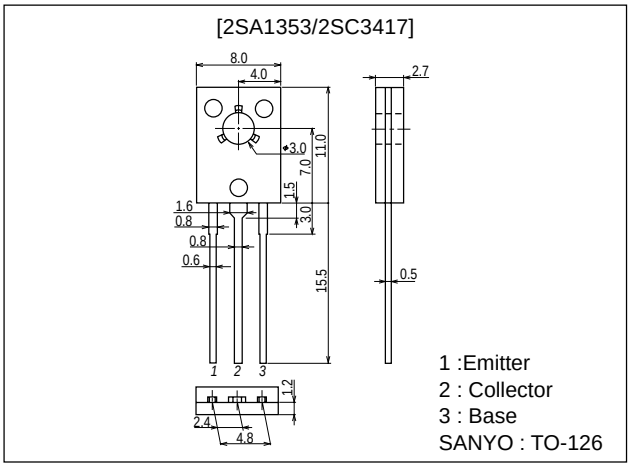
Features

- High breakdown voltage : $V_{CEO} \leq 300V$.
- Excellent high frequency characteristics : Cre=1.8pF(typ).
- Adoption of MBIT process.

Package Dimensions

unit:mm

2009B



( ) : 2SA1353

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)300	V
Collector-to-Emitter Voltage	V_{CEO}		(–)300	V
Emitter-to-Base Voltage	V_{EBO}		(–)5	V
Collector Current	I_C		(–)100	mA
Collector Current (Pulse)	I_{CP}		(–)200	mA
Collector Dissipation	P_C		1.2	W
		Tc=25˚C	7	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}=(–)200V, 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=(–)10mA	40		320	
Gain-Bandwidth Product	f_T	V_{CE}=(–)30V, I_C=(–)10mA		70		MHz

* : 2SA1353/2SC3417 are classified by 10mA h_{FE} as follows :

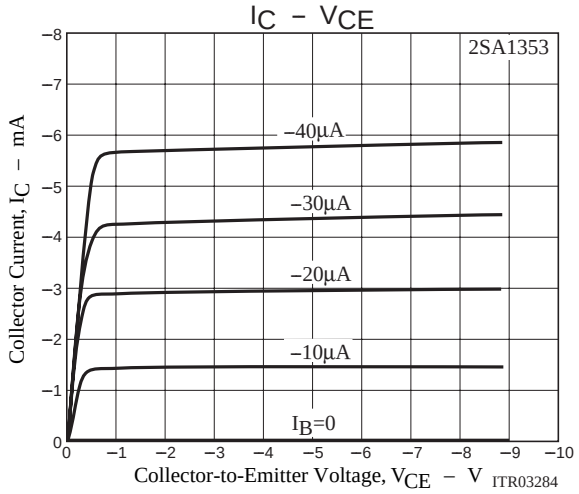
Rank	C	D	E	F
h_{FE}	40 to 80	60 to 120	100 to 200	160 to 320

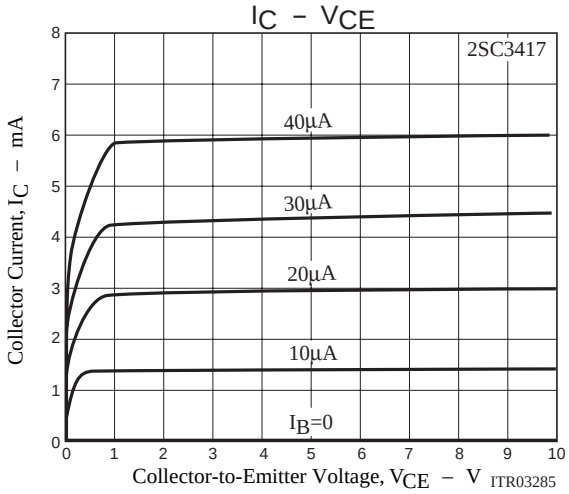
Continued on next page.

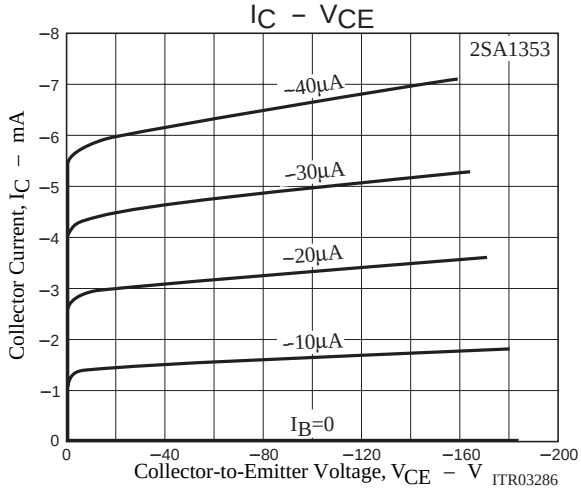
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

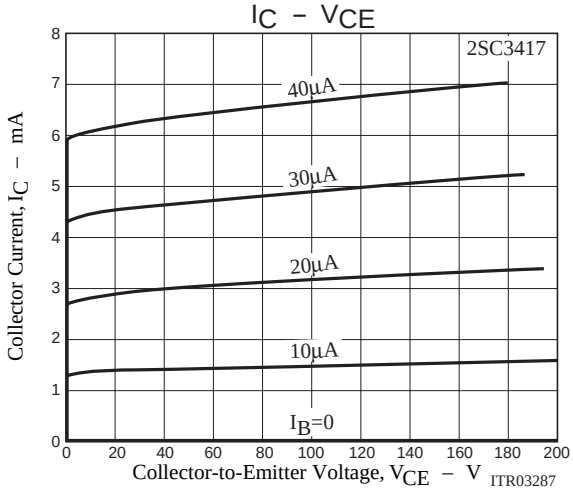
Continued from preceding page.

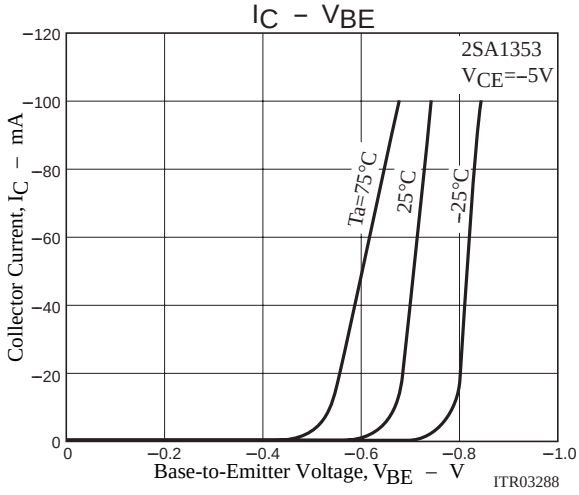
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)20mA, I_B=(–)2mA			(–)0.6	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)20mA, I_B=(–)2mA			(–)1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)300			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)300			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=∞	(–)5			V
Common Base Output Capacitance	C_{ob}	V_{CB}=(–)30V, f=1MHz		2.6		pF
				(3.1)		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=(–)30V, f=1MHz		1.8		pF
				(2.3)		pF

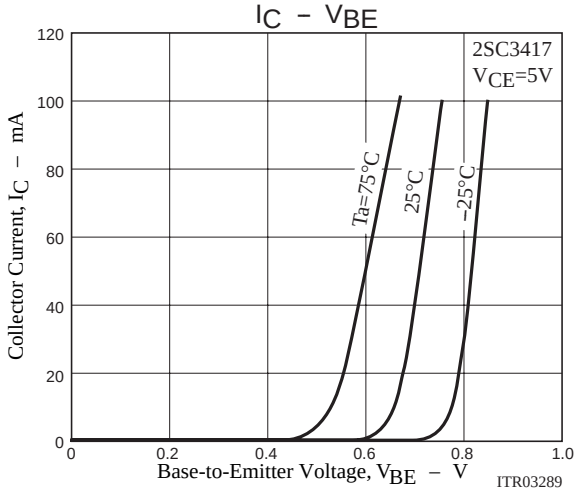


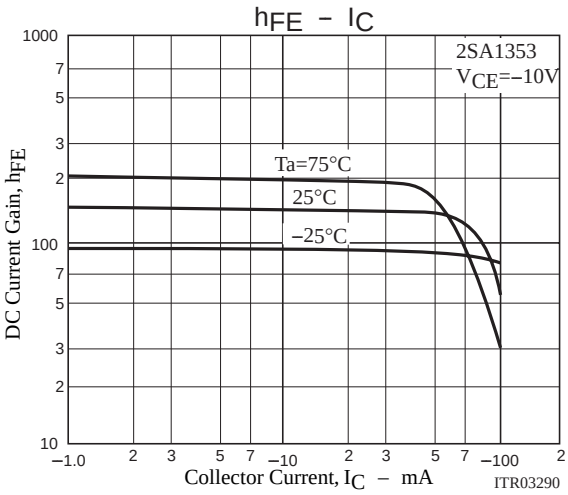


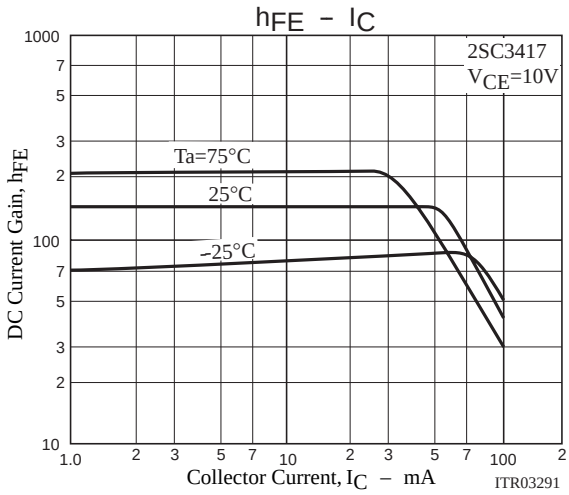


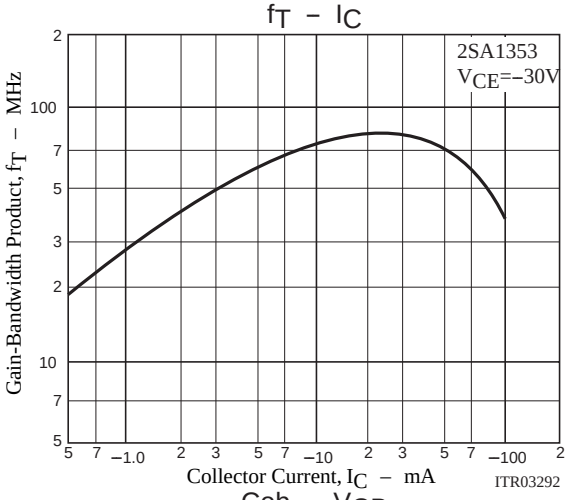


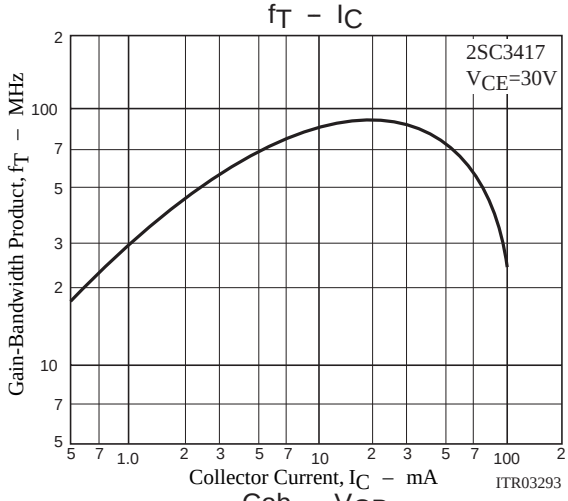


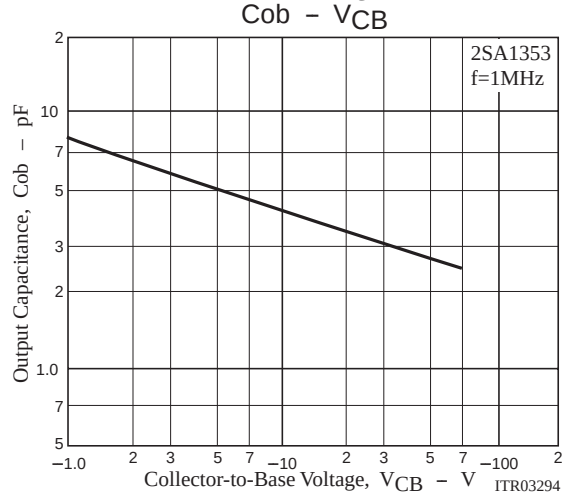


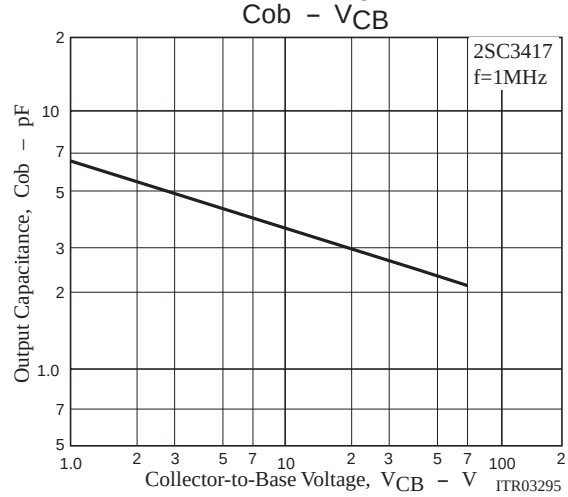

hFE – IC
2SA1353
VCE=–10V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA
ITR03290

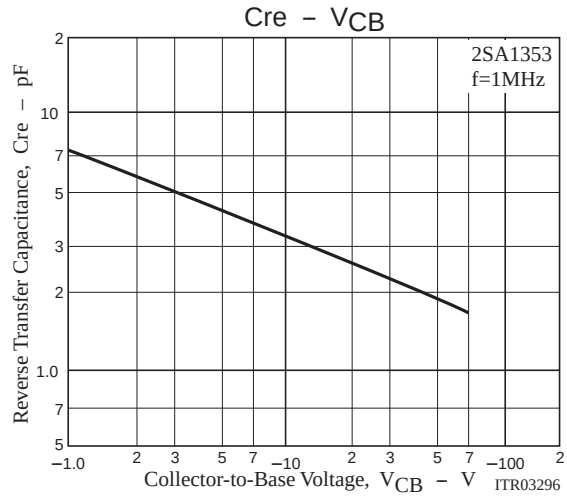

hFE – IC
2SC3417
VCE=10V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA
ITR03291

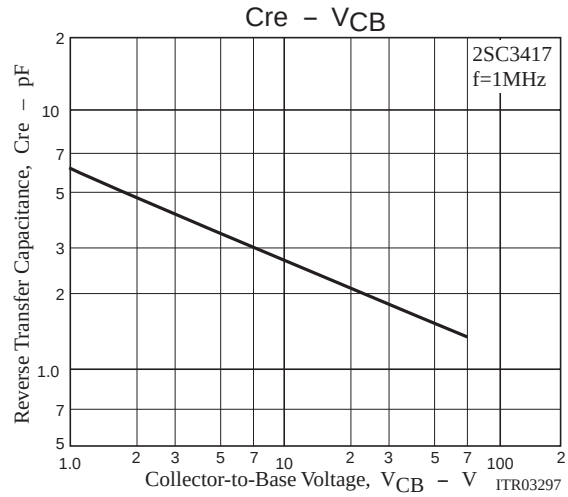

fT – IC
2SA1353
VCE=–30V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03292

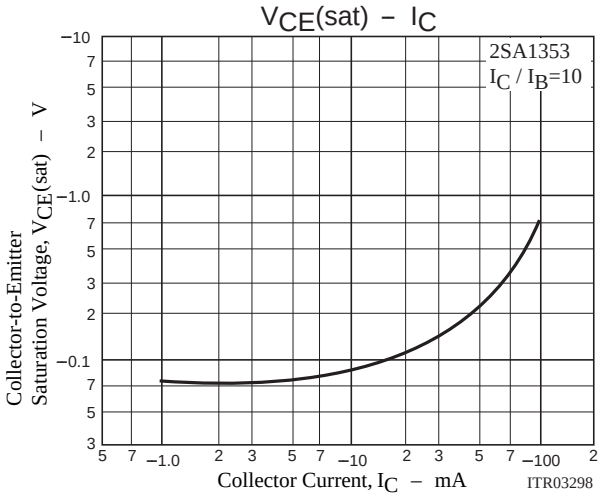

fT – IC
2SC3417
VCE=30V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03293

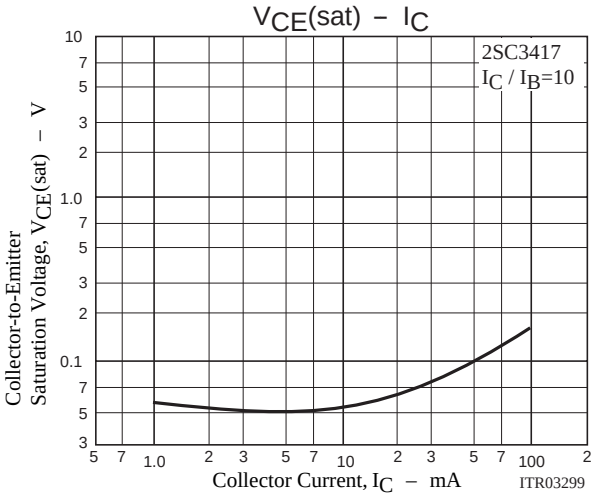

Cob – VCB
2SA1353
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03294

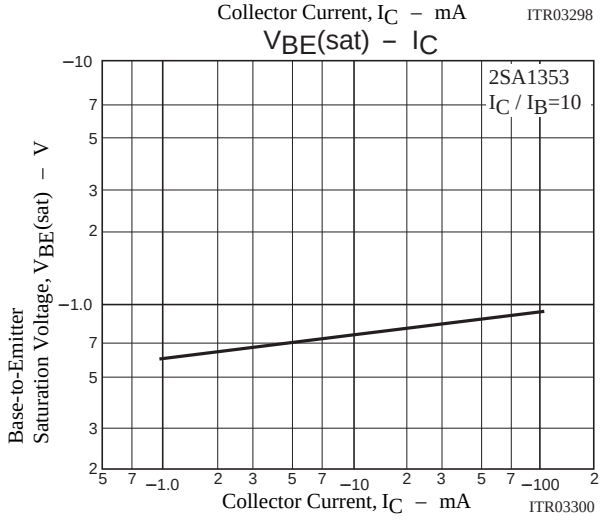

Cob – VCB
2SC3417
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03295

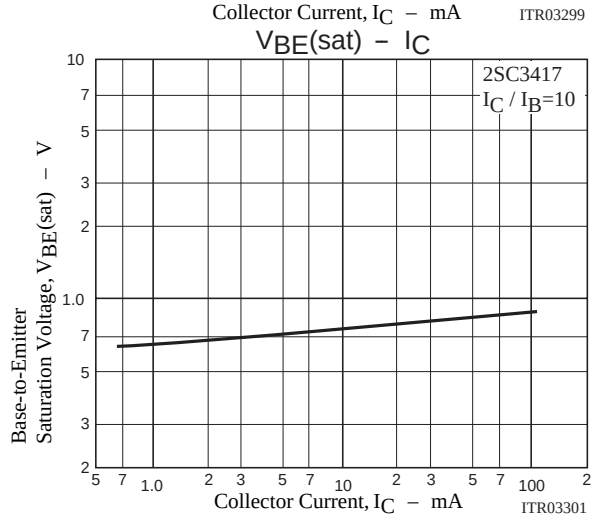

Cre – VCB
2SA1353
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03296

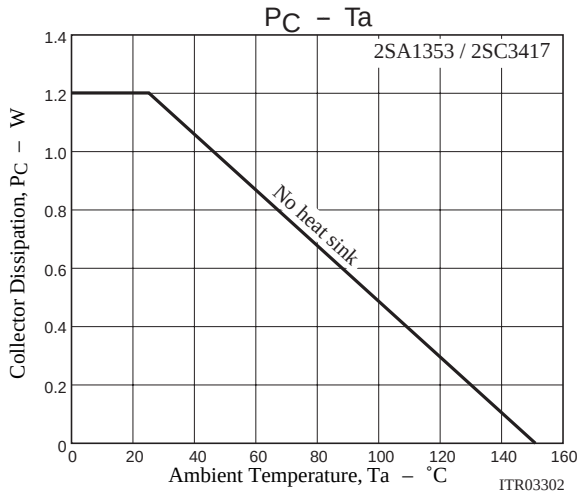

Cre – VCB
2SC3417
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03297

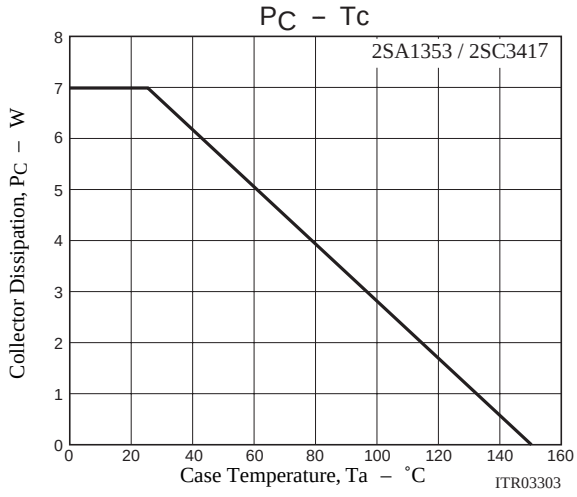

VCE(sat) – IC
2SA1353
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR03298

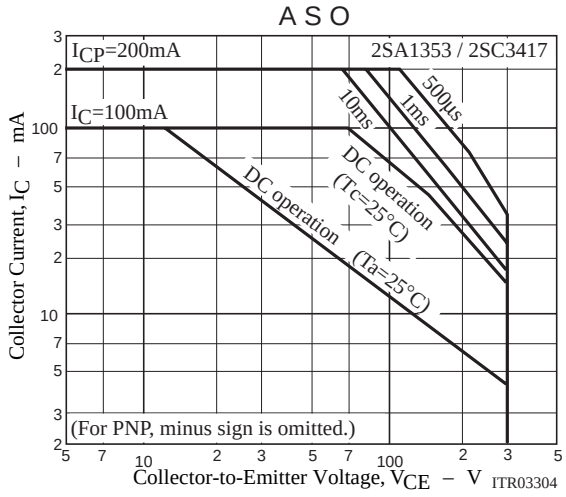

VCE(sat) – IC
2SC3417
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR03299


VBE(sat) – IC
2SA1353
IC / IB=10
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – mA
ITR03300


VBE(sat) – IC
2SC3417
IC / IB=10
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – mA
ITR03301


PC – Ta
2SA1353 / 2SC3417
No heat sink
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
ITR03302


PC – Tc
2SA1353 / 2SC3417
Collector Dissipation, PC – W
Case Temperature, Ta – °C
ITR03303


A S O
ICP=200mA
IC=100mA
2SA1353 / 2SC3417
500µs
1ms
10ms
DC operation (Tc=25°C)
DC operation (Ta=25°C)
(For PNP, minus sign is omitted.)
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
ITR03304

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