Ordering number:ENN1425C

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1380/2SC3502

Ultrahigh-Definition CRT Display, Video Output Applications

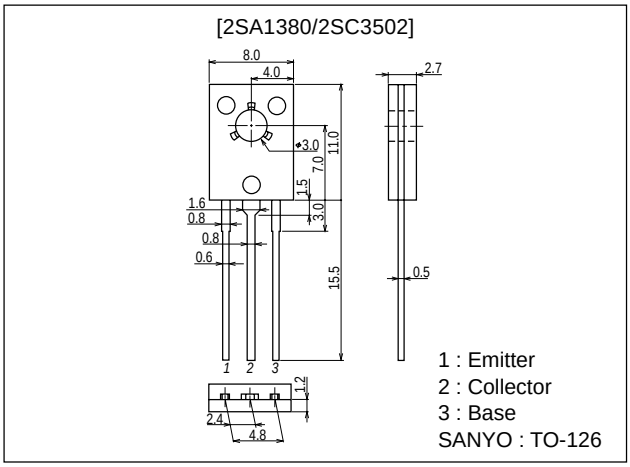
Features

- High breakdown voltage : V_{CEO}≥200V.
- Small reverse transfer capacitance and excellent high-frequnecy characteristics
  : C_{re}=1.2pF (NPN), 1.7pF (PNP), V_{CB}=30V.
- Adoption of FBET process

Package Dimensions

unit:mm

2009B



( ) : 2SA1380

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)200	V
Collector-to-Emitter Voltage	V_{CEO}		(–)200	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	5	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}=(–)150V, 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		150		MHz

* : The 2SA1380/2SC3502 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.

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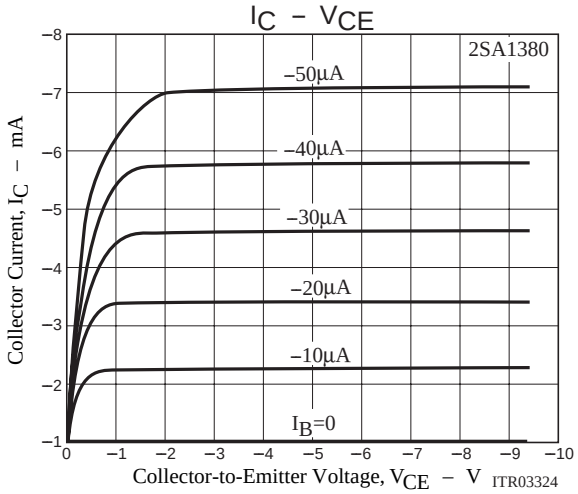
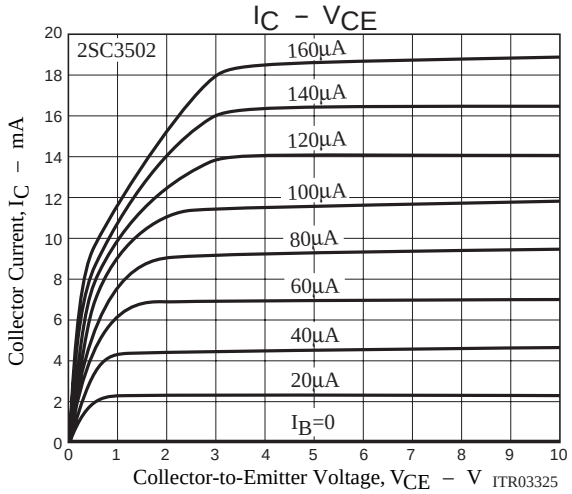
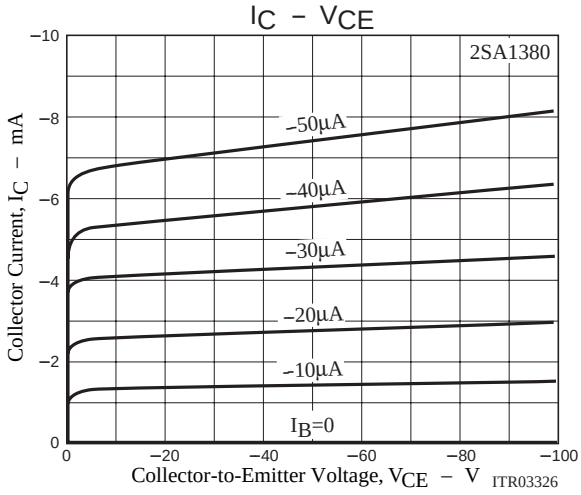
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

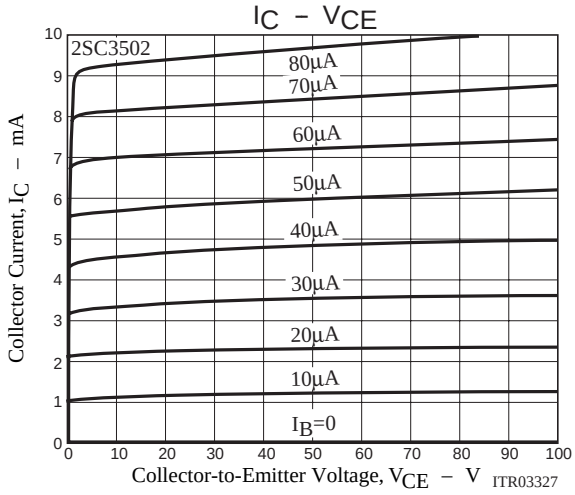
Continued from preceding page.

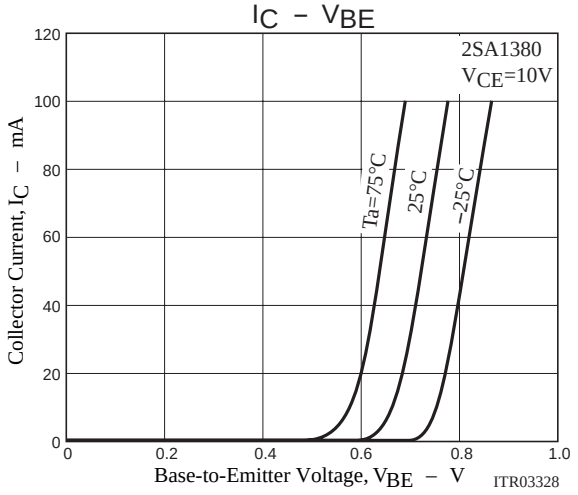
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	C_{ob}	V_{CB}=(–)30V, f=1MHz		1.7		pF
				(2.6)		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=(–)30V, f=1MHz		1.2		pF
				(1.7)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)20mA, I_B=(–)2mA			(–)0.6	V
Base-to-Emitter 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	(–)200			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)200			V
Emitter-to-Base Breakdown Votage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)5			V

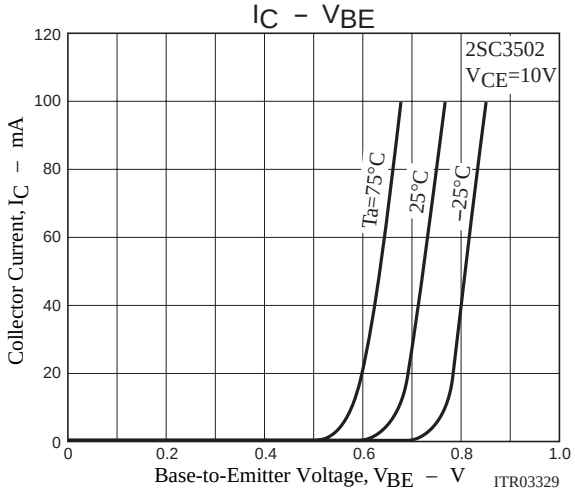


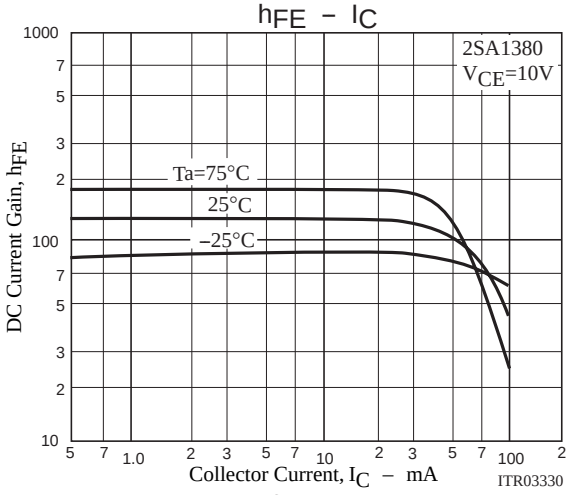


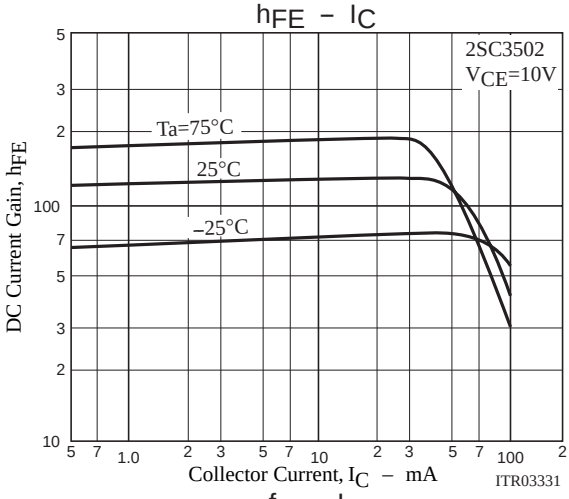


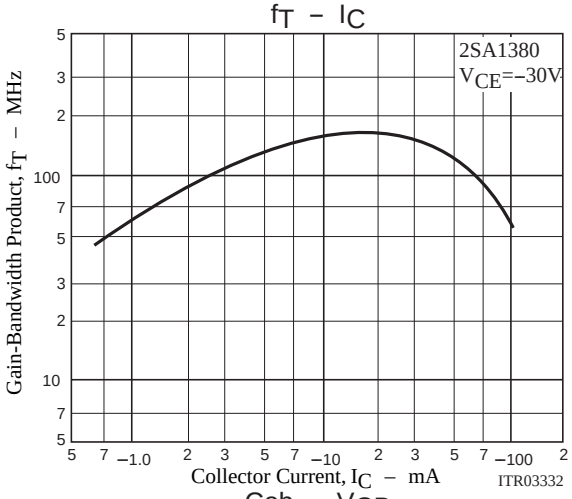


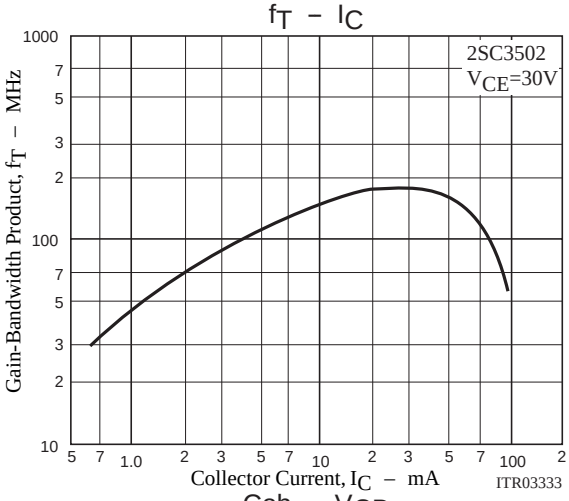


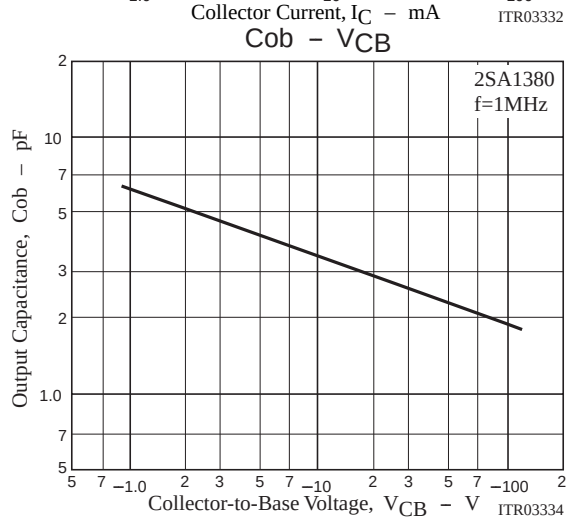


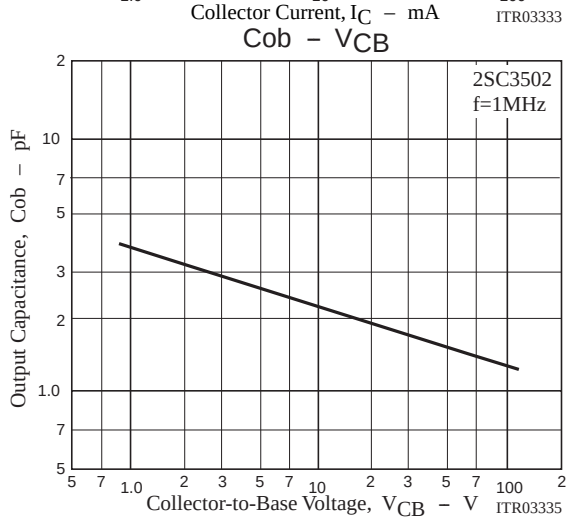

hFE – IC
2SA1380
VCE=10V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA
ITR03330

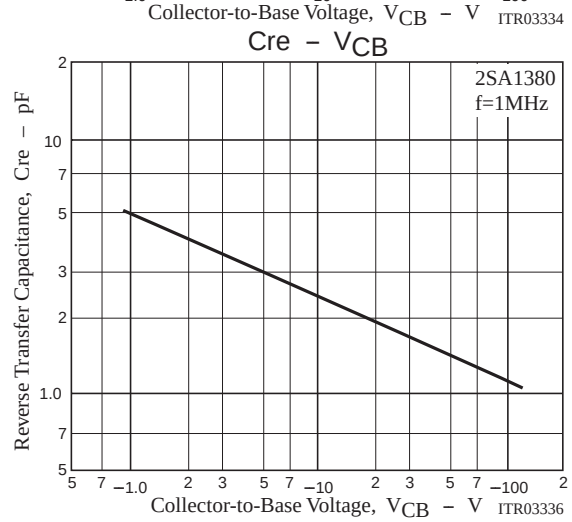

hFE – IC
2SC3502
VCE=10V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA
ITR03331

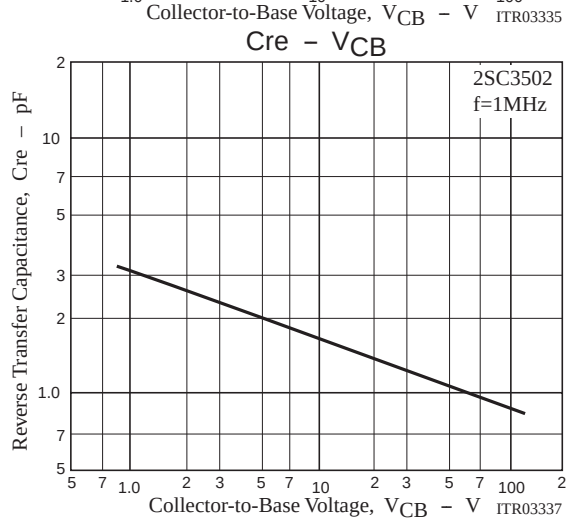

fT – IC
2SA1380
VCE=–30V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03332


fT – IC
2SC3502
VCE=30V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03333

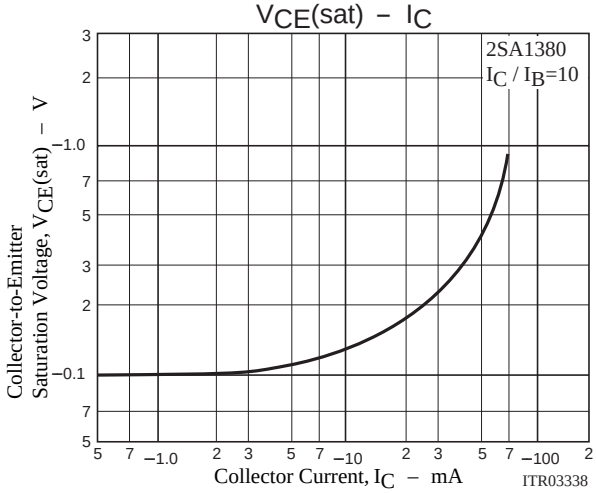

Cob – VCB
2SA1380
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03334

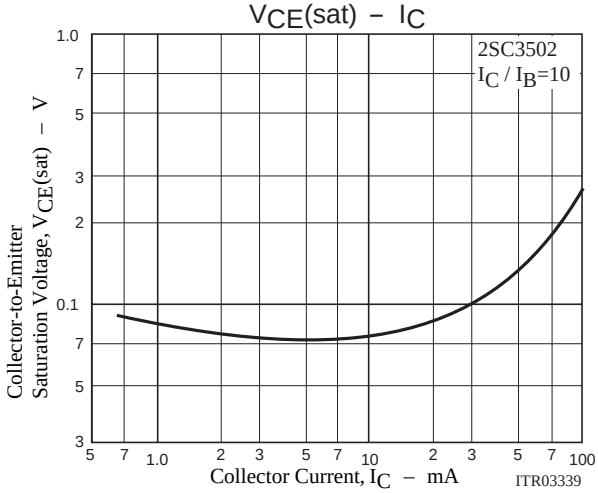

Cob – VCB
2SC3502
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03335


Cre – VCB
2SA1380
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03336

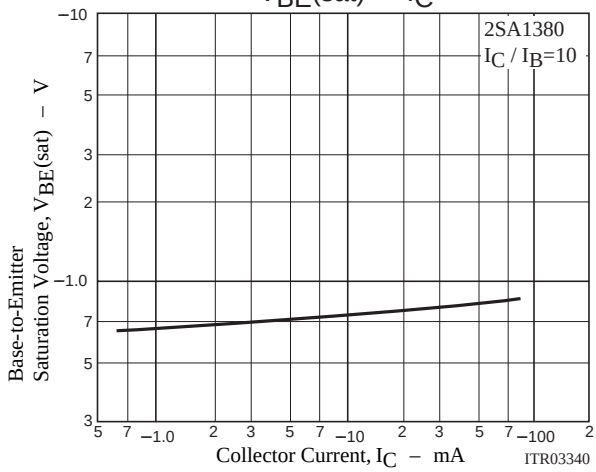

Cre – VCB
2SC3502
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03337

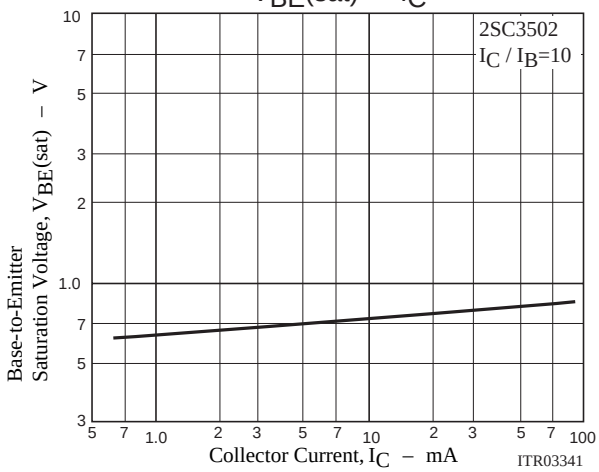
$V_{CE}(sat)$ – I_C



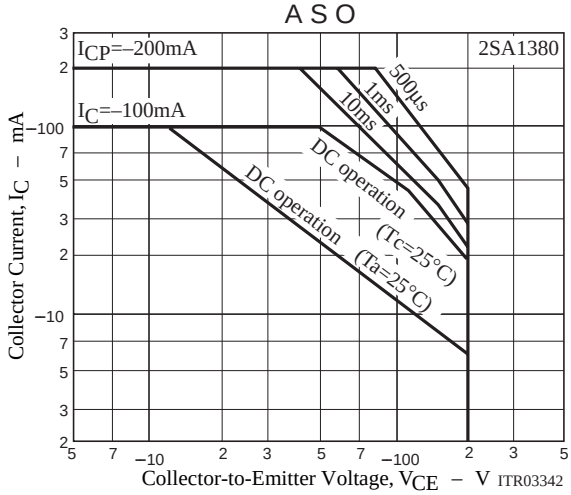


$V_{BE}(sat)$ – I_C

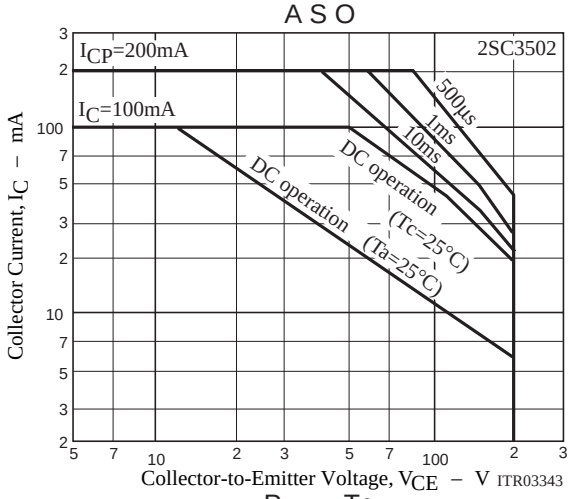




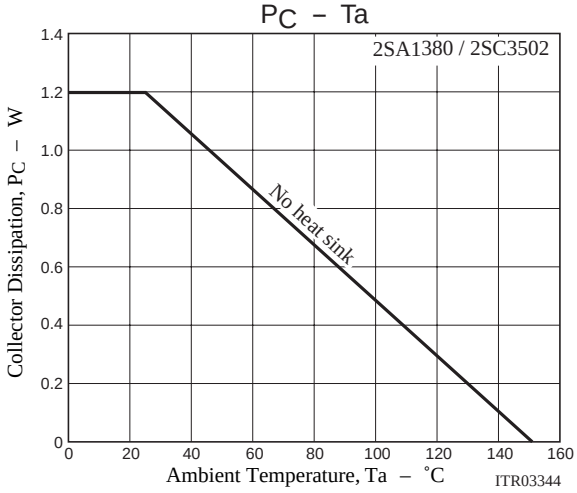
A S O



A S O



P_C – Ta



P_C – Tc