Ordering number: EN 924E

SANYO

No.924E

2SB880/2SD1190

Silicon PNP/NPN Epitaxial Planar Type
Darlington Transistor
FOR VARIOUS DRIVERS

Applications

- Motor drivers, printer hammer drivers, relay drivers, voltage regulators

Features

- High DC current gain
- Large current capacity and wide ASO
- Low saturation voltage

( ): 2SB880

Absolute Maximum Ratings/T_a=25°C

				unit
Collect-to-Base Voltage	V_{CBO}		(−)70	V
Collector-to-Emitter Voltage	V_{CEO}		(−)60	V
Emitter-to-Base Voltage	V_{EBO}		(−)6	V
Collector Current	I_C		(−)4	A
Peak Collector Current	i_{cp}		(−)6	A
Collector Dissipation	P_C		1.75	W
		T_c=25°C	30	W
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		−55 to +150	°C

Electrical Characteristics/T_a=25°C

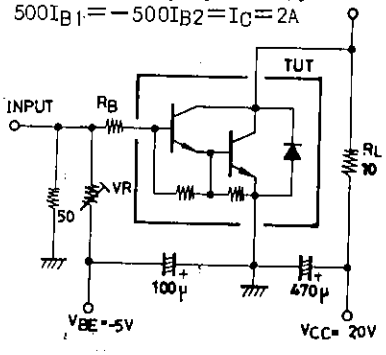
			min	typ	max	unit
Collector Cut-off Current	I_{CBO}	V_{CB}=(−)40, I_E=0			(−)0.1	mA
Emitter Cut-off Current	I_{EBO}	V_{EB}=(−)5V, I_C=0			(−)3.0	mA
DC Current Gain	h_{FE}	V_{CE}=(−)2V, IC=(−)2A	2000	5000		
Gain Band-width Product	f_T	V_{CE}=(−)5V, I_C=(−)2A		20		MHz
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(−)2A, I_B=(−)4mA		0.9 (−1.0)	(−)1.5	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(−)2A, I_B=(−)4mA			(−)2.0	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(−)5mA, I_E=0	(−)70			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(−)50mA, R_{BE}=∞	(−)60			V
Turn-on Time	t_{on}	At Specified Test Circuit		(0.5)0.6		μs
Storage Time	t_{stg}	"		(1.4)2.7		μs
Fall Time	t_f	"		(1.2)1.6		μs

Specified Test Circuit

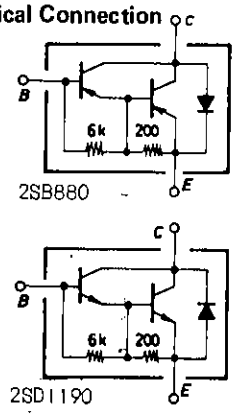
(For PNP, the polarity is reversed.)

PW=50μs, Duty Cycle≤1%

$500I_{B1}$=−$500I_{B2}$=I_C=2A

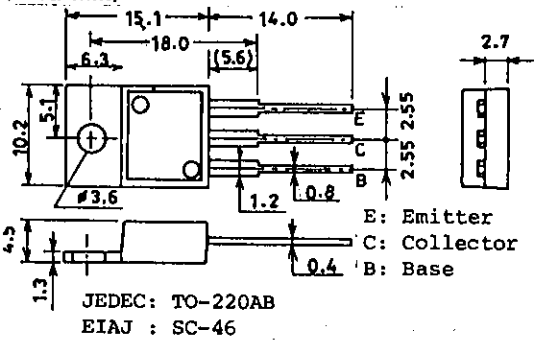


Electrical Connection



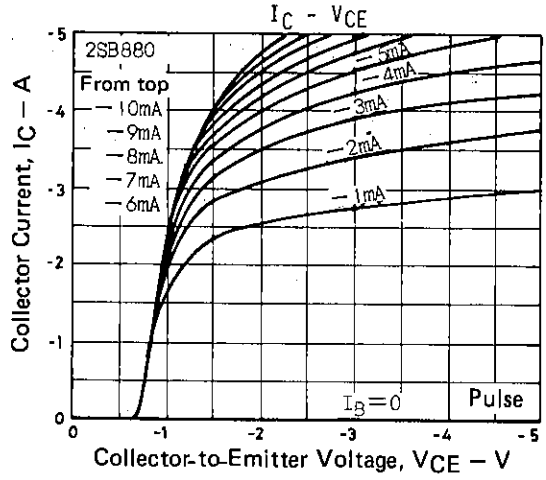
Package Dimensions 2010B

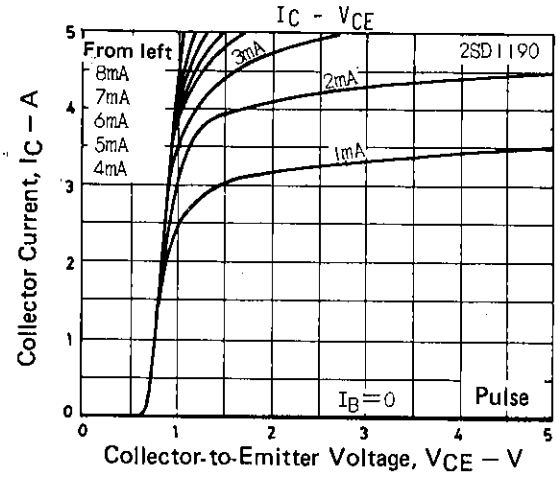
(unit: mm)

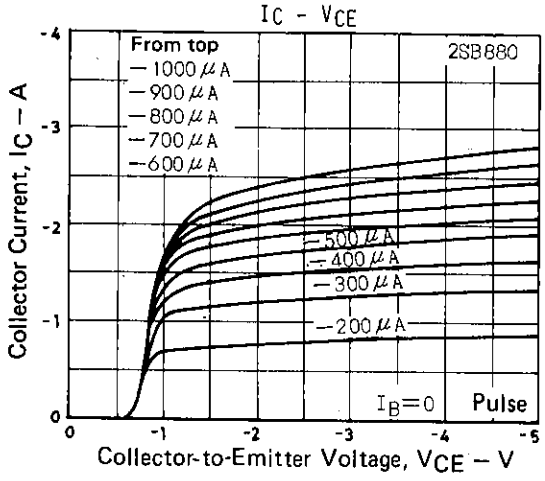


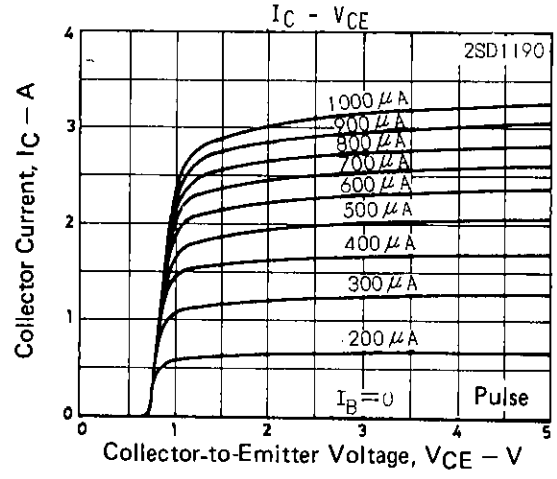
Unit (resistance:Ω, capacitance:F)

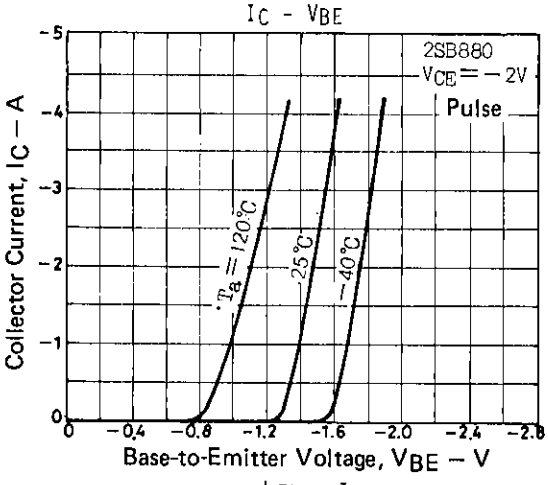
SANYO Electric Co.,Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10,1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

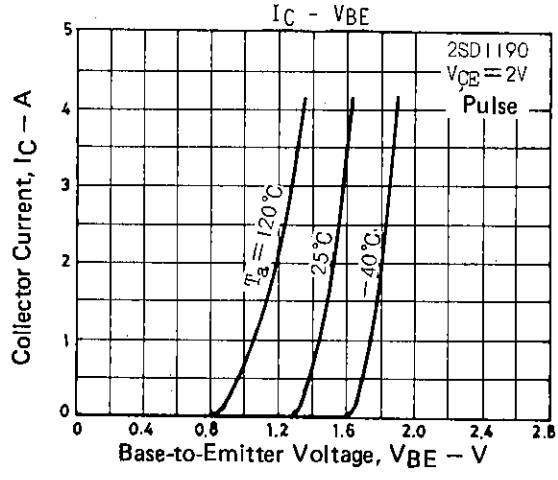

IC - VCE
2SB880
From top
−10mA
−9mA
−8mA
−7mA
−6mA
−5mA
−4mA
−3mA
−2mA
−1mA
IB=0
Pulse
Collector Current, IC − A
Collector-to-Emitter Voltage, VCE − V

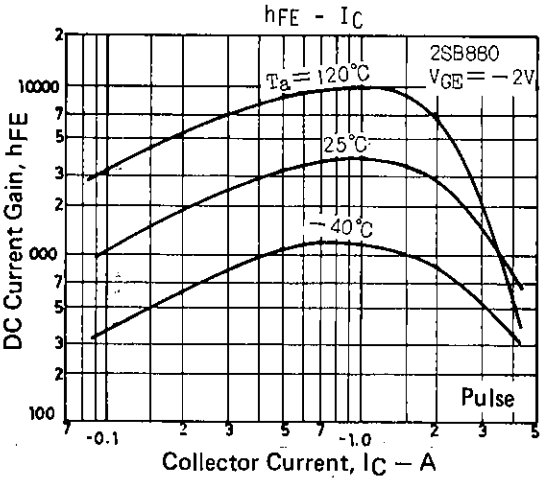

IC - VCE
2SD1190
From left
8mA
7mA
6mA
5mA
4mA
3mA
2mA
1mA
IB=0
Pulse
Collector Current, IC − A
Collector-to-Emitter Voltage, VCE − V

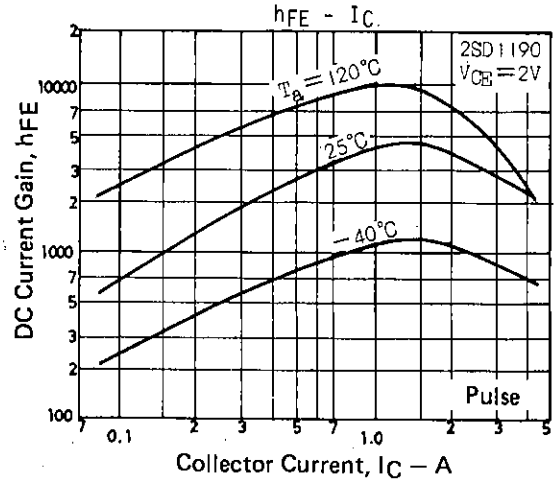

IC - VCE
2SB880
From top
−1000μA
−900μA
−800μA
−700μA
−600μA
−500μA
−400μA
−300μA
−200μA
IB=0
Pulse
Collector Current, IC − A
Collector-to-Emitter Voltage, VCE − V

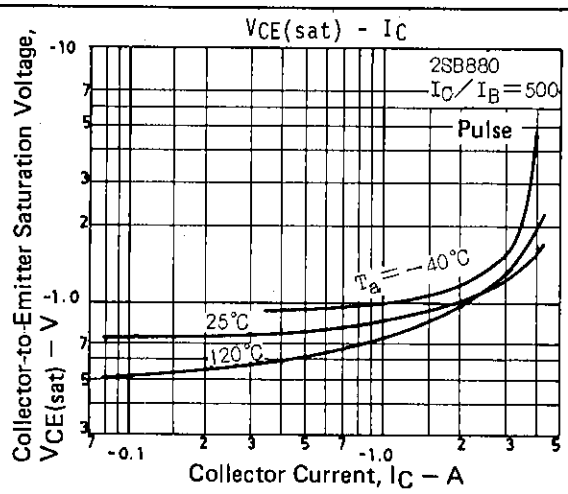

IC - VCE
2SD1190
1000μA
900μA
800μA
700μA
600μA
500μA
400μA
300μA
200μA
IB=0
Pulse
Collector Current, IC − A
Collector-to-Emitter Voltage, VCE − V

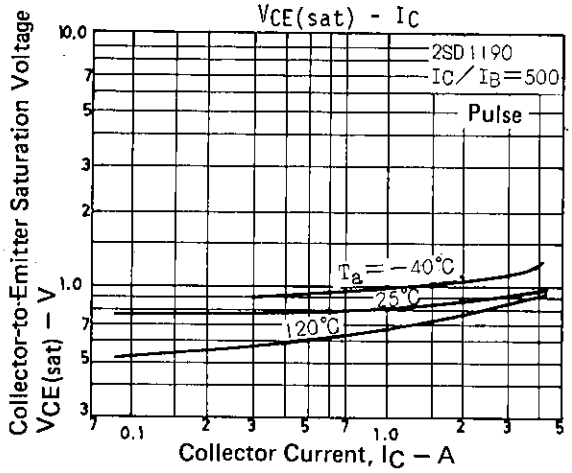

IC - VBE
2SB880
VCE=−2V
Pulse
Ta=120°C
25°C
−40°C
Collector Current, IC − A
Base-to-Emitter Voltage, VBE − V

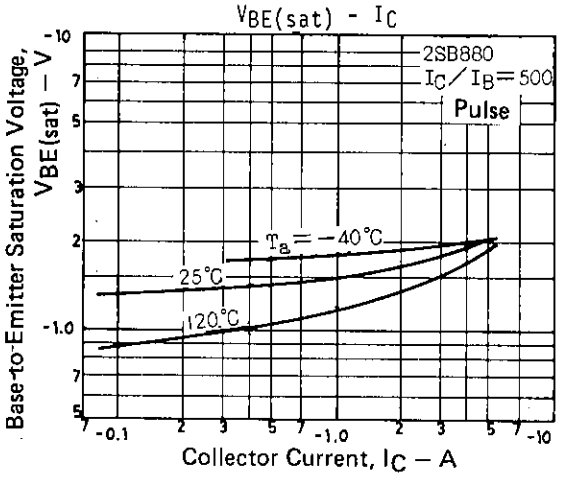

IC - VBE
2SD1190
VCE=2V
Pulse
Ta=120°C
25°C
−40°C
Collector Current, IC − A
Base-to-Emitter Voltage, VBE − V

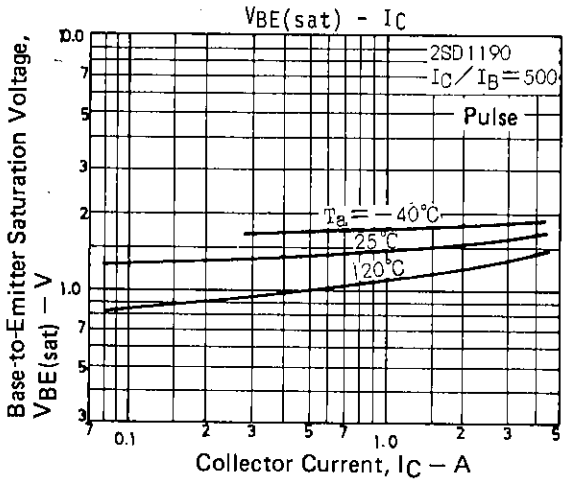

hFE - IC
2SB880
VCE=−2V
Ta=120°C
25°C
−40°C
Pulse
DC Current Gain, hFE
Collector Current, IC − A

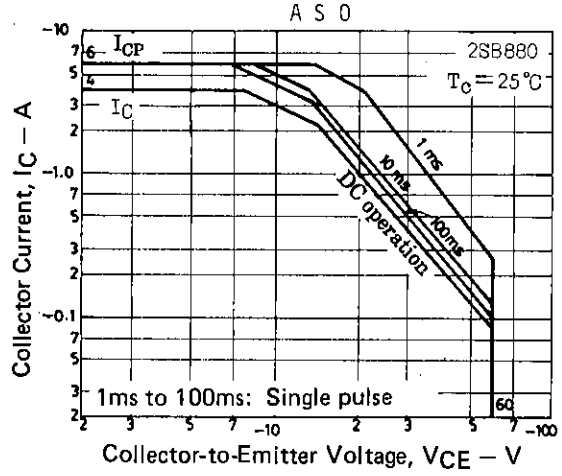

hFE - IC
2SD1190
VCE=2V
Ta=120°C
25°C
−40°C
Pulse
DC Current Gain, hFE
Collector Current, IC − A

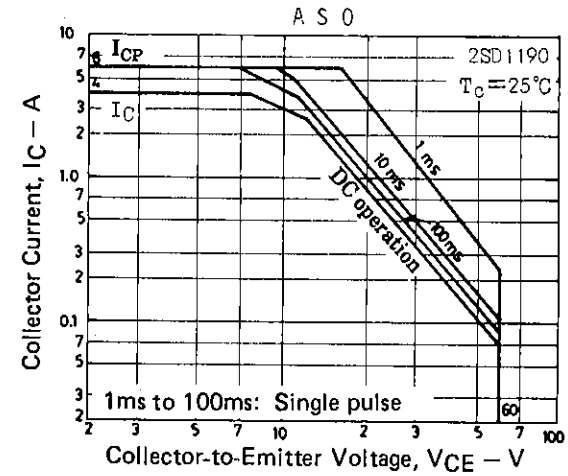

VCE(sat) - IC
2SB880
IC/IB=500
Pulse
Ta=−40°C
25°C
120°C
Collector-to-Emitter Saturation Voltage, VCE(sat) − V
Collector Current, IC − A

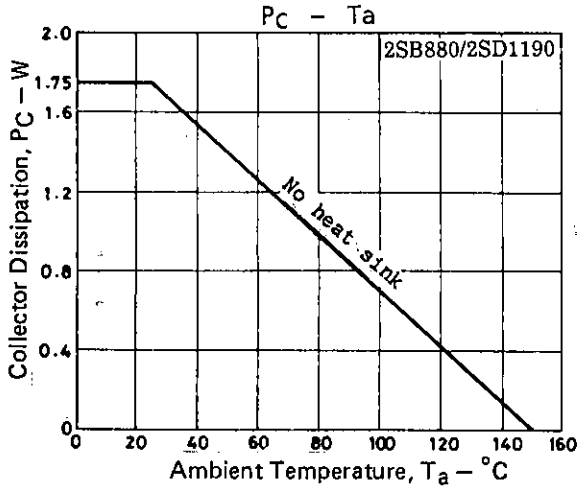

VCE(sat) - IC
2SD1190
IC/IB=500
Pulse
Ta=−40°C
25°C
120°C
Collector-to-Emitter Saturation Voltage VCE(sat) − V
Collector Current, IC − A

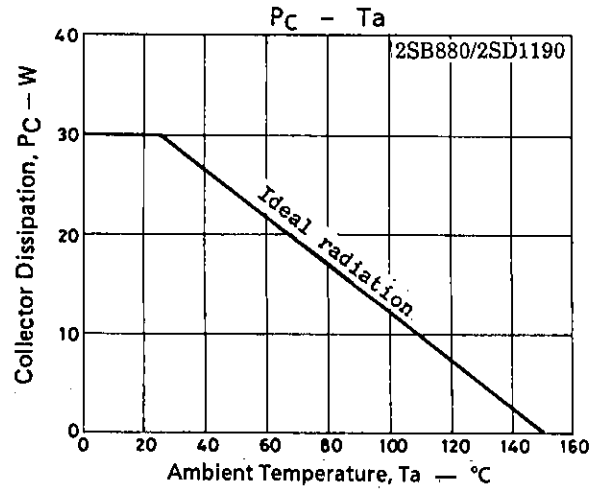

VBE(sat) - IC
2SB880
IC/IB=500
Pulse
Ta=−40°C
25°C
120°C
Base-to-Emitter Saturation Voltage, VBE(sat) − V
Collector Current, IC − A


VBE(sat) - IC
2SD1190
IC/IB=500
Pulse
Ta=−40°C
25°C
120°C
Base-to-Emitter Saturation Voltage, VBE(sat) − V
Collector Current, IC − A


A S O
2SB880
Tc=25°C
ICP
IC
1 ms
10 ms
100ms
DC operation
1ms to 100ms: Single pulse
Collector Current, IC − A
Collector-to-Emitter Voltage, VCE − V


A S O
2SD1190
Tc=25°C
ICP
IC
1 ms
10 ms
100ms
DC operation
1ms to 100ms: Single pulse
Collector Current, IC − A
Collector-to-Emitter Voltage, VCE − V


PC - Ta
2SB880/2SD1190
No heat sink
Collector Dissipation, PC − W
Ambient Temperature, Ta − °C


PC - Ta
2SB880/2SD1190
Ideal radiation
Collector Dissipation, PC − W
Ambient Temperature, Ta — °C