Ordering number : EN2214C

SANYO Semiconductors
DATA SHEET

2SB1228 / 2SD1830 — PNP / NPN Epitaxial Planar Silicon Darlington Transistors
Driver Applications

Applications

- Suitable for use in control of motor drivers, printer hammer drivers, relay drivers, and constant-voltage regulators.

Features

- High DC current gain.
- Large current capacity and wide ASO.
- Low saturation voltage.
- Micaless package facilitating mounting.

Specifications ( ) : 2SB1228

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-)110	V
Collector-to-Emitter Voltage	V_{CEO}		(-)100	V
Emitter-to-Base Voltage	V_{EBO}		(-)6	V
Collector Current	I_C		(-)8	A
Collector Current (Pulse)	I_{CP}		(-)12	A
Collector Dissipation	P_C		2.0	W
		Tc=25°C	30	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}=(-)80V, I_E=0A			(-)0.1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(-)5V, I_C=0A			(-)3.0	mA
DC Current Gain	h_{FE}	V_{CE}=(-)3V, I_C=(-)4A	1500	4000		
Gain-Bandwidth Product	f_T	V_{CE}=(-)5V, I_C=(-)4A		20		MHz
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=(-)4A, I_B=(-)8mA		(-1.0)0.9	(-)1.5	V
Base-to-Emitterr Saturation Voltage	V_{BE}(sat)	I_C=(-)4A, I_B=(-)8mA			(-)2.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(-)5mA, I_E=0A	(-)110			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(-)50mA, R_{BE}=∞	(-)100			V

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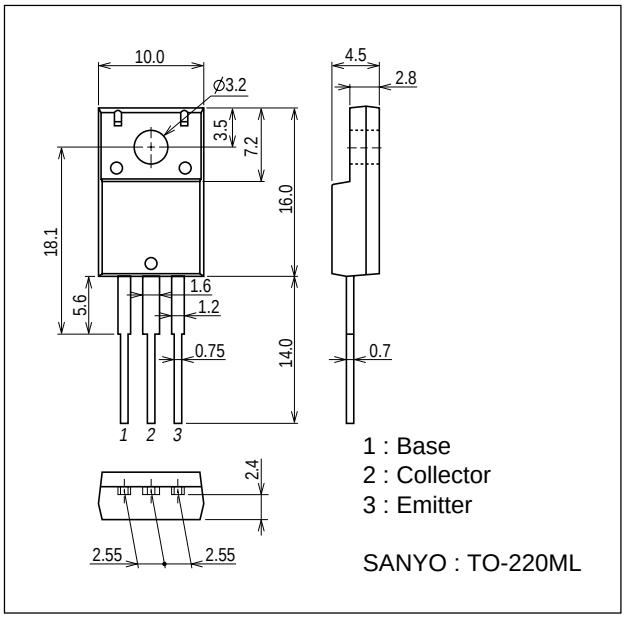
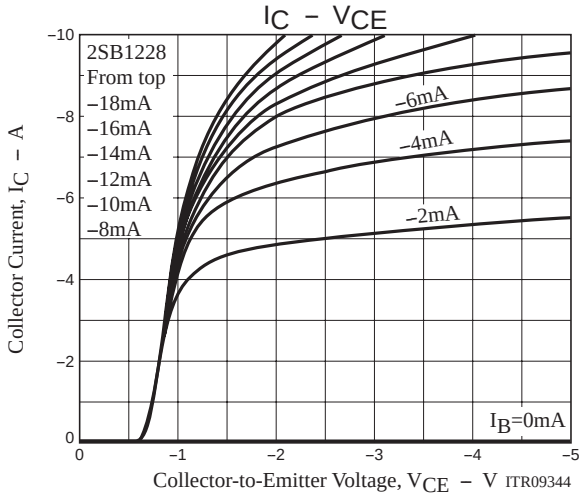
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-On Time	t_{on}	See specified Test Circuit.		(0.7)0.6		µs
Storage Time	t_{stg}	See specified Test Circuit.		(1.4)4.8		µs
Fall Time	t_f	See specified Test Circuit.		(1.5)1.6		µs

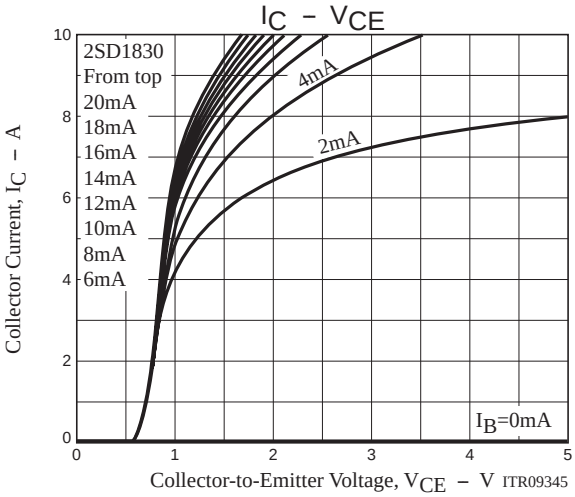
Package Dimensions

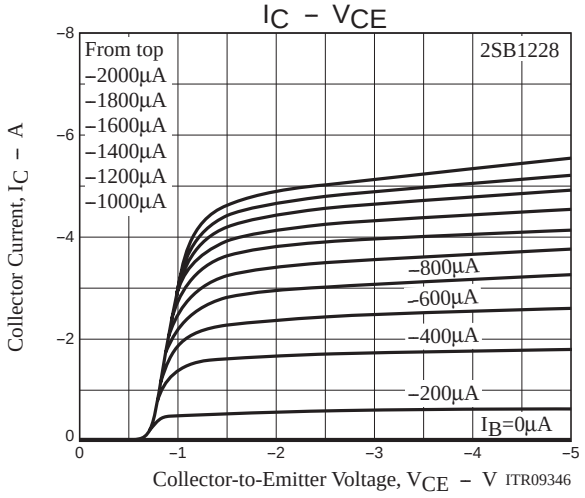
unit : mm (typ)

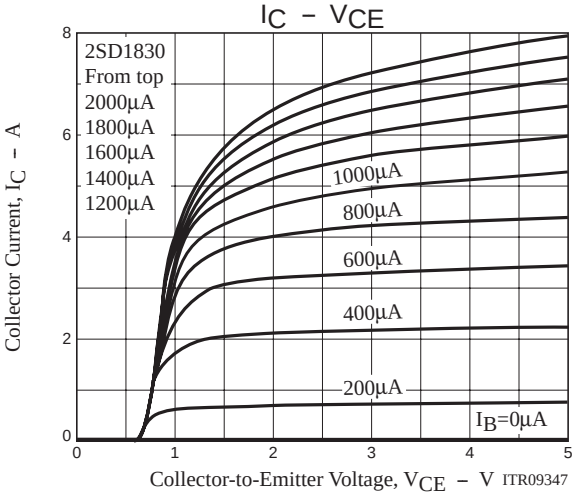
7508-002

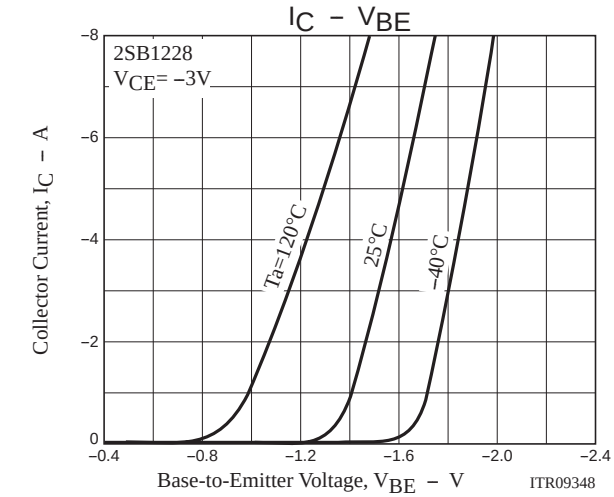


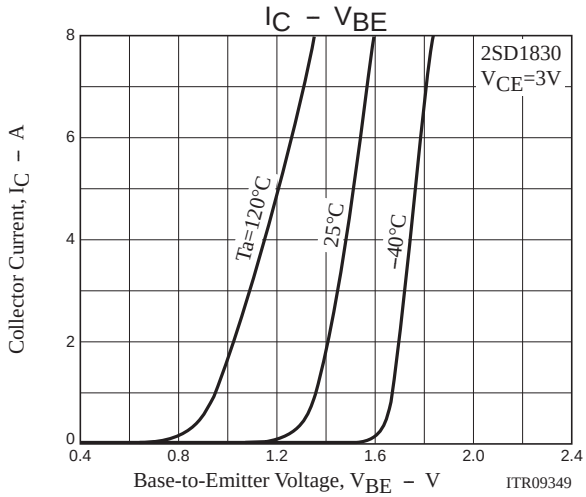


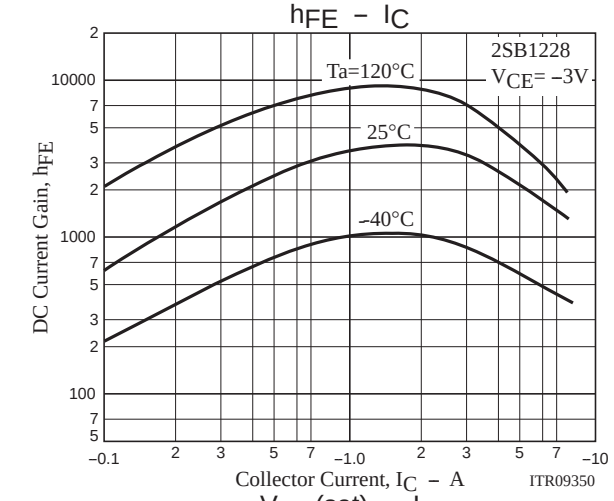


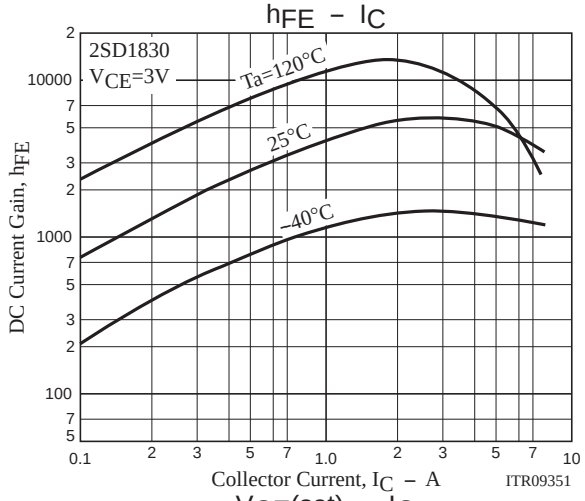


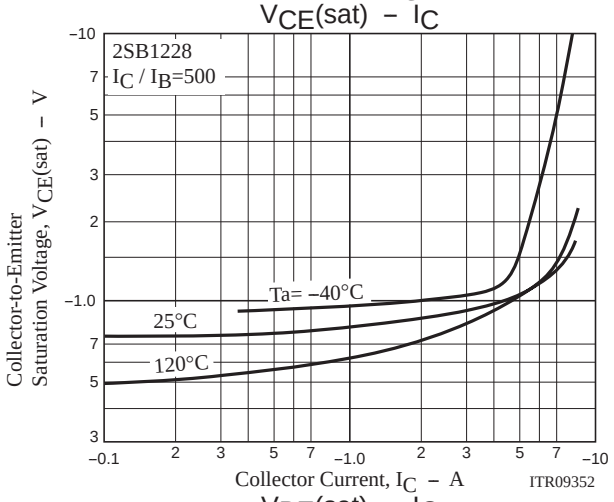


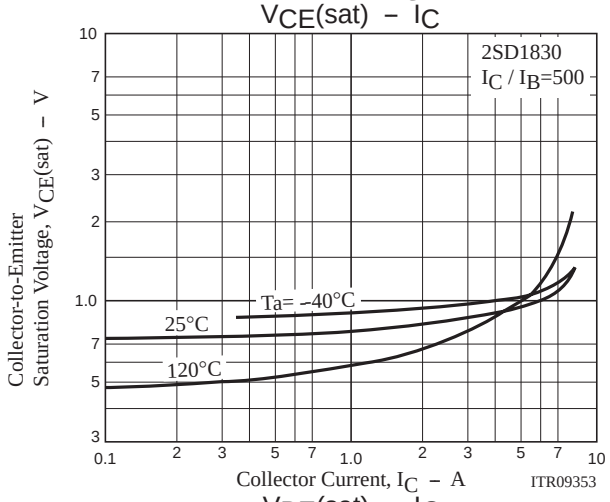

IC – VBE
2SB1228
VCE= –3V
Ta=120°C
25°C
–40°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
ITR09348

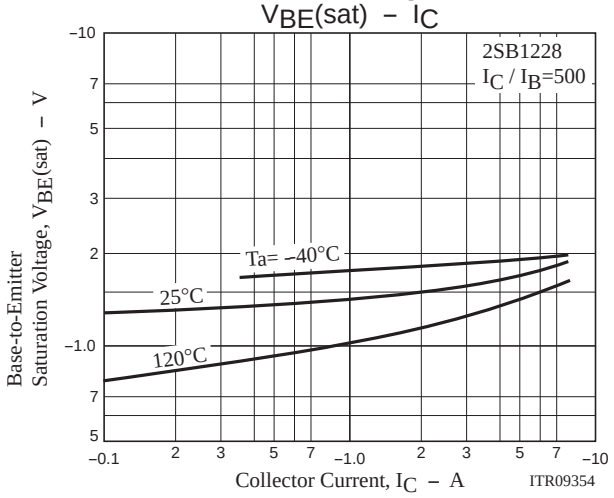

IC – VBE
2SD1830
VCE=3V
Ta=120°C
25°C
–40°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
ITR09349

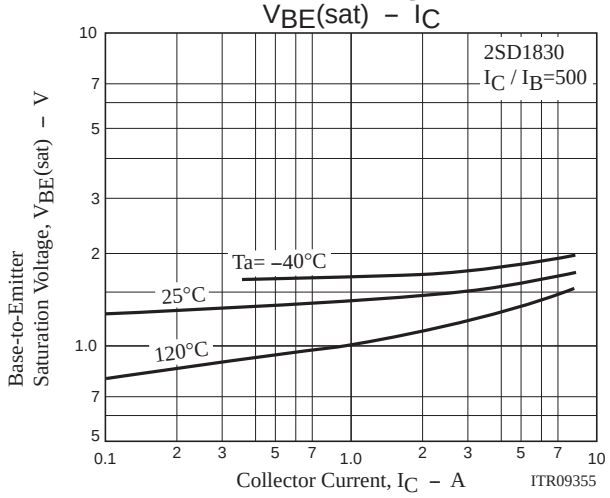

hFE – IC
2SB1228
VCE= –3V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC – A
ITR09350


hFE – IC
2SD1830
VCE=3V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC – A
ITR09351


VCE(sat) – IC
2SB1228
IC / IB=500
Ta= –40°C
25°C
120°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
ITR09352


VCE(sat) – IC
2SD1830
IC / IB=500
Ta= –40°C
25°C
120°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
ITR09353


VBE(sat) – IC
2SB1228
IC / IB=500
Ta= –40°C
25°C
120°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
ITR09354


VBE(sat) – IC
2SD1830
IC / IB=500
Ta= –40°C
25°C
120°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
ITR09355