Ordering number:ENN2209C

PNP/NPN Epitaxial Planar Silicon Darlington Transistors

2SB1223/2SD1825

Driver Applications

Applications

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

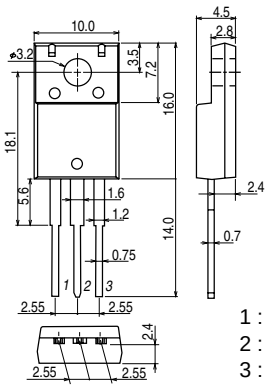
Features

· High DC current gain.
· Large current capacity and wide ASO.
· Micaless package facilitating mounting.

Package Dimensions

unit:mm

2041A



( ) : 2SB1223

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-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
Collector Current (Pulse)	I_{CP}		(–)6	A
Collector Dissipation	P_C		2.0	W
		Tc=25˚C	20	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}=(–)40V, I_E=0			(–)0.1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)5V, I_C=0			(–)3.0	mA
DC Current Gain	h_{FE}	V_{CE}=(–)2V, I_C=(–)2A	2000	5000		
Gain-Bandwidth 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	(–)1.5	V
				(–1.0)		V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)2A, I_B=(–)4mA			(–)2.0	V

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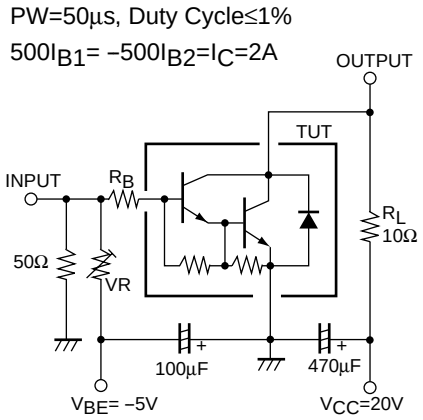
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

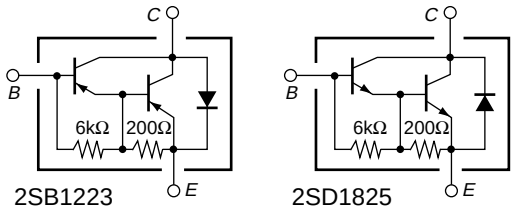
Continued from preceding page.

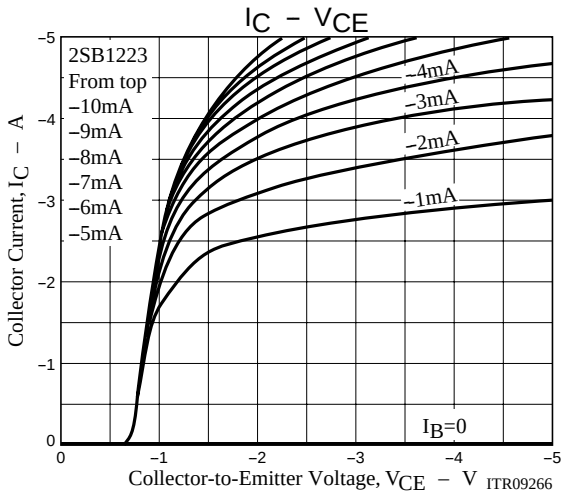
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)5mA, I_E=0	(–)70			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)50mA, R_{BE}=∞	(–)60			V
Turn-ON Time	t_{on}	See specified Test Circuit		0.6		µs
				(0.5)		µs
Storage Time	t_{stg}	See specified Test Circuit		2.7		µs
				(1.4)		µs
Fall Time	t_f	See specified Test Circuit		1.6		µs
				(1.2)		µs

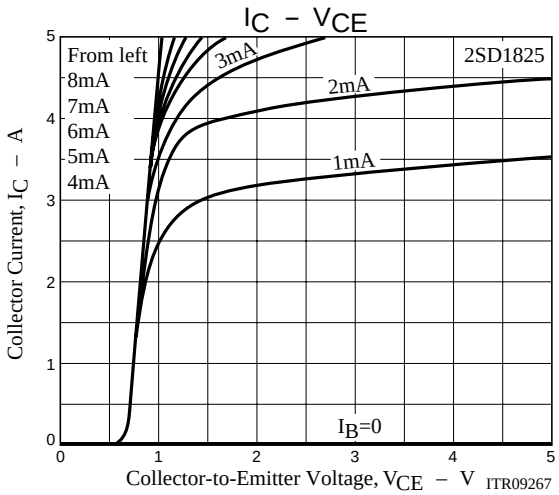
Switching Time Test Circuit

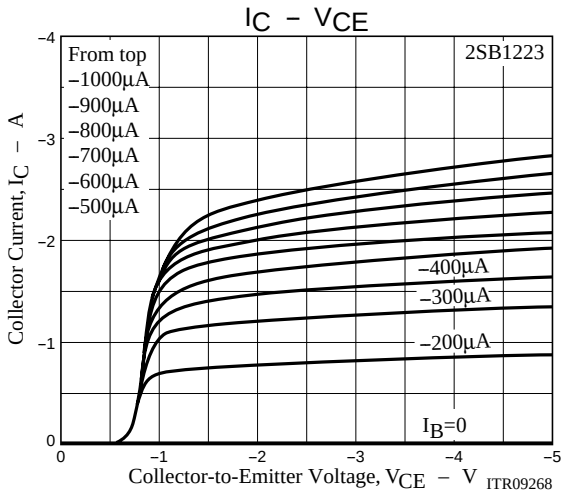


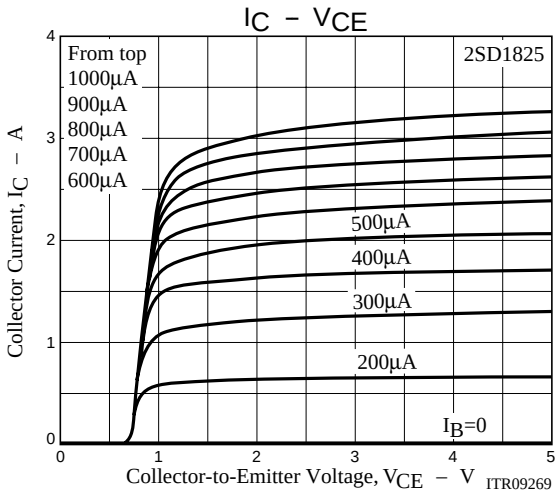
Electrical Connection

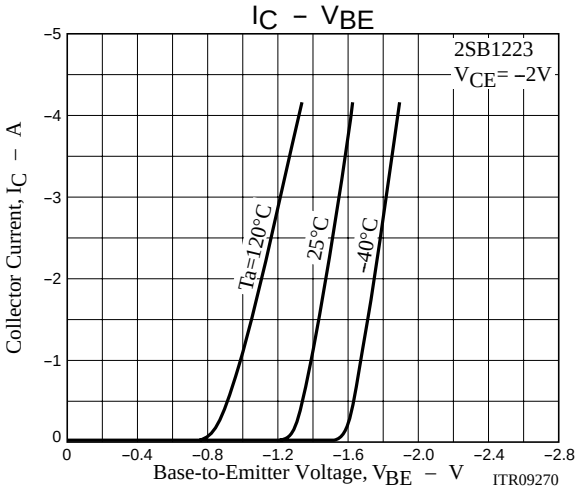


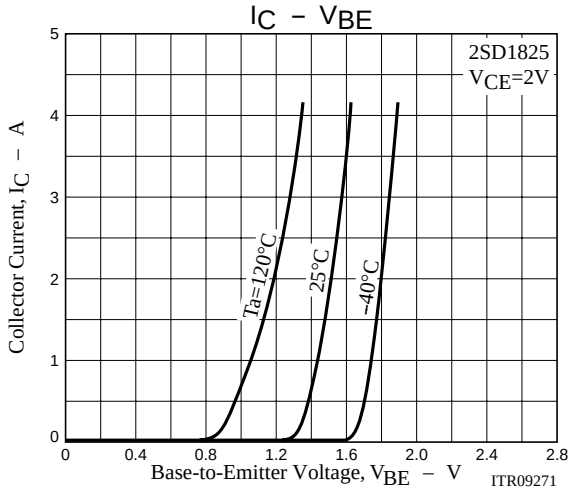


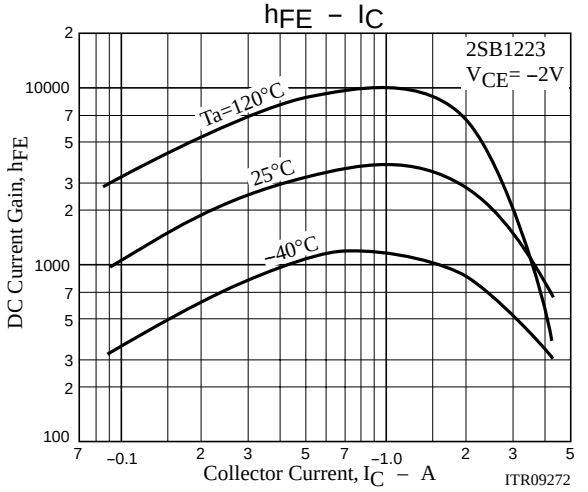


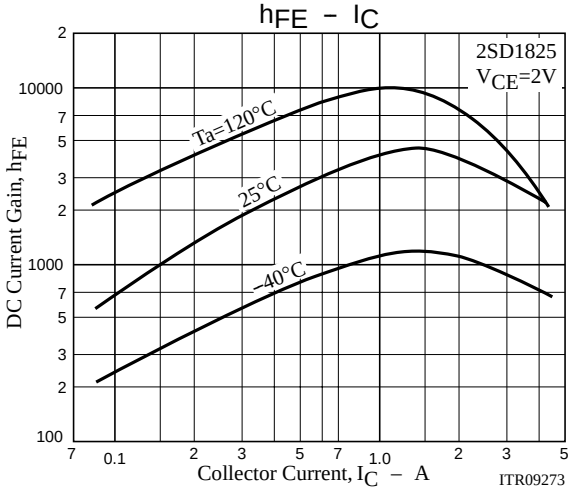


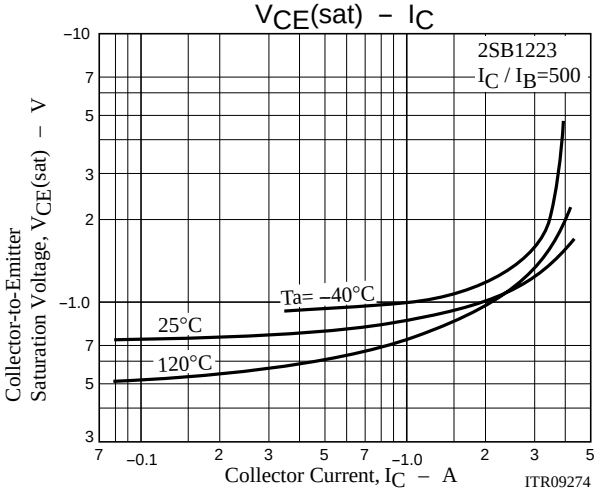


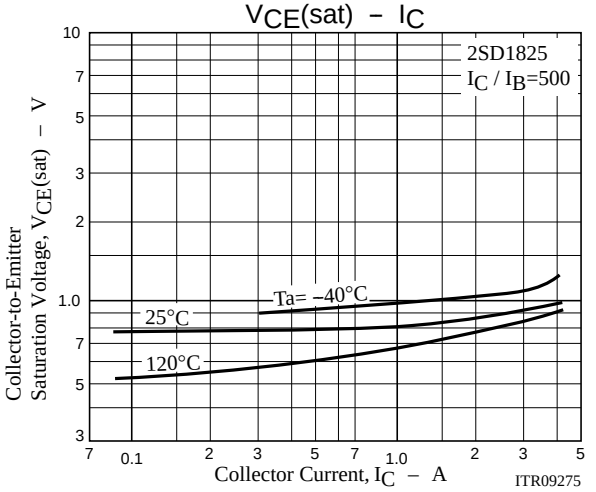

IC – VBE
2SB1223
VCE= –2V
Ta=120°C
25°C
–40°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
ITR09270

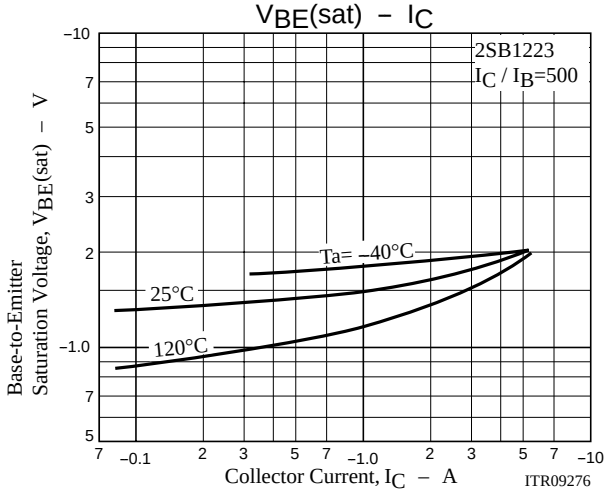

IC – VBE
2SD1825
VCE=2V
Ta=120°C
25°C
–40°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
ITR09271

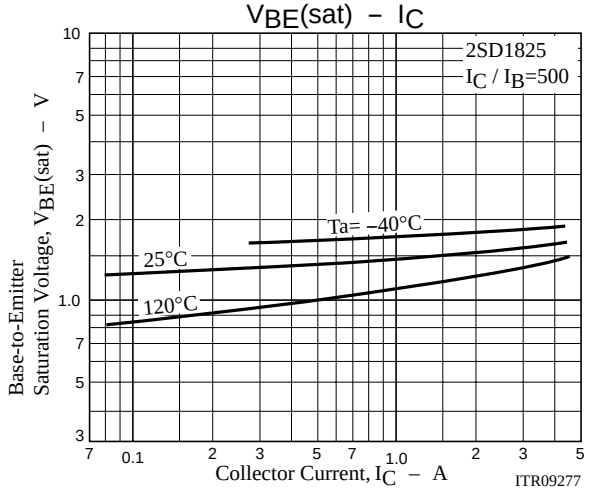

hFE – IC
2SB1223
VCE= –2V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC – A
ITR09272


hFE – IC
2SD1825
VCE=2V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC – A
ITR09273


VCE(sat) – IC
2SB1223
IC / IB=500
Ta= –40°C
25°C
120°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
ITR09274


VCE(sat) – IC
2SD1825
IC / IB=500
Ta= –40°C
25°C
120°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
ITR09275


VBE(sat) – IC
2SB1223
IC / IB=500
Ta= –40°C
25°C
120°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
ITR09276


VBE(sat) – IC
2SD1825
IC / IB=500
Ta= –40°C
25°C
120°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
ITR09277