Ordering number:ENN4135

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1855/2SC4837

50V/4A Switching Applications

Applications

· Power supplies, relay drivers, lamp drivers.

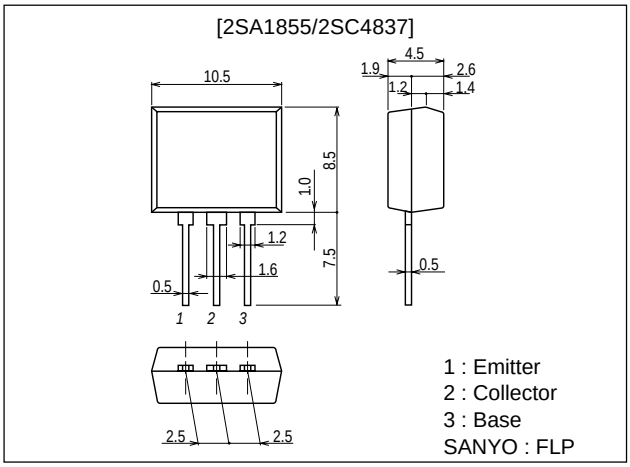
Features

· Adoption of FBET and MBIT processes.
· Large allowable collector dissipation.
· Low saturation voltage.
· Wide ASO and large current capacity.
· Usage of radial taping to meet automatic mounting.

Package Dimensions

unit:mm

2084B



( ) : 2SA1855

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)60	V
Collector-to-Emitter Voltage	V_{CEO}		(–)50	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)4	A
Colletor Current (Pulse)	I_{CP}		(–)6	A
Collector Dissipation	P_C		1.5	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}=(–)40V, I_E=0			(–)1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)2V, I_C=(–)10mA	100*		400*	
	$h_{FE}2$	V_{CE}=(–)2V, I_C=(–)3A	40			
Gain Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		150		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(39)25		pF

* : The 2SA1855/2SC4837 are classified by 100mA h_{FE} as follows :

Continued on next page.

Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

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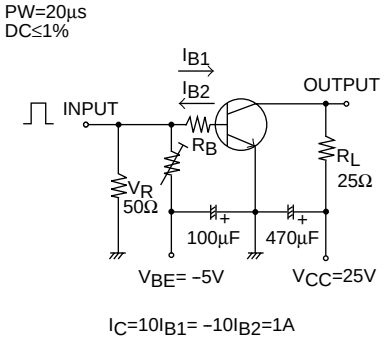
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

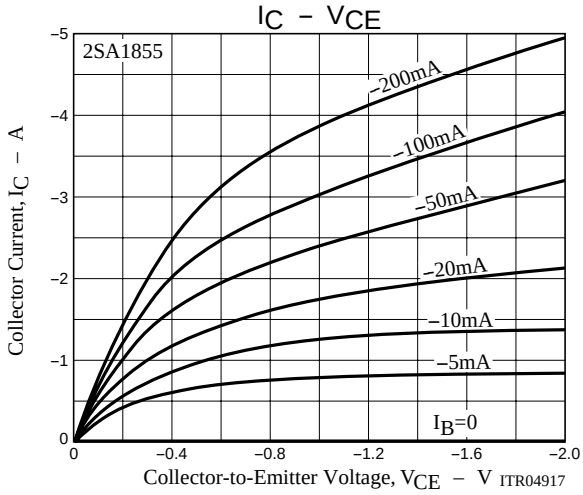
Continued from preceding page.

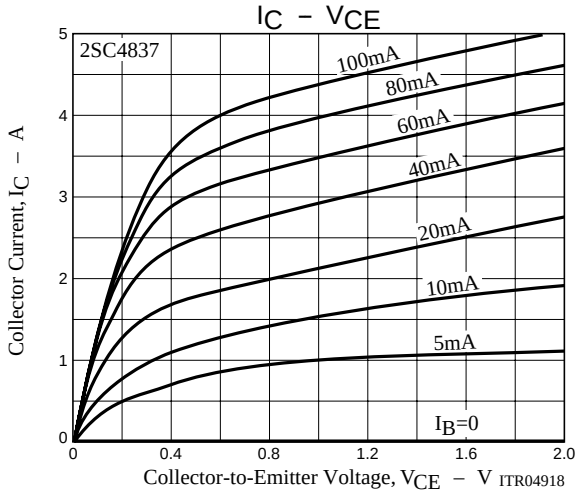
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)2A, I_B=(–)100mA		(–350)	(–700)	mV
				190	500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)2A, I_B=(–)100mA		(–)0.94	(–)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0	(–)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	(–)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, I_C=0	(–)6			V
Turn-ON Time	t_{on}	See specified Test CIrcuit		70		ns
Storage Time	t_{stg}	See specified Test CIrcuit		(450)		ns
				650		ns
Fall Time	t_f	See specified Test Circuit		(30)35		ns

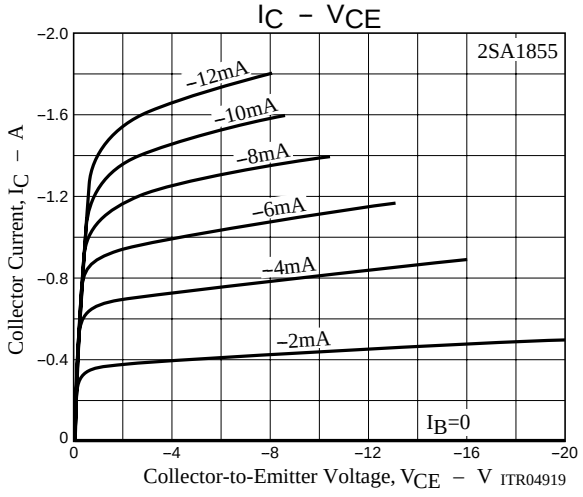
Switching Time Test Circuit

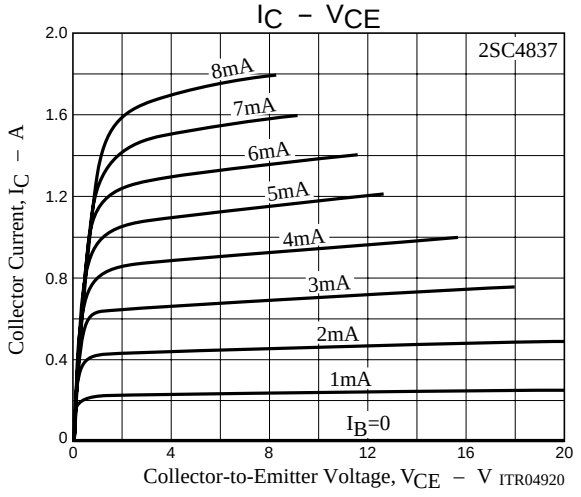


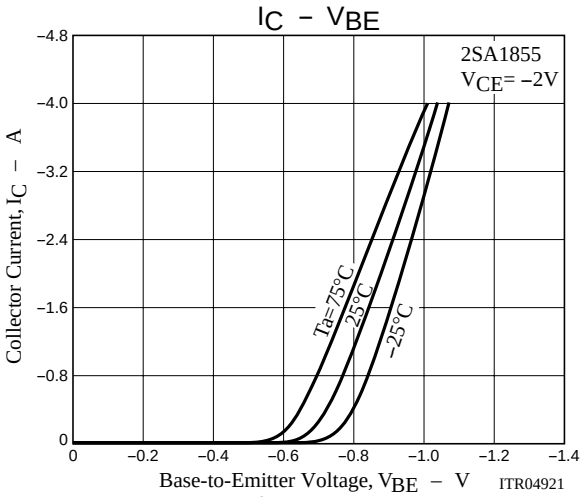
I_C=10I_{B1}= –10I_{B2}=1A

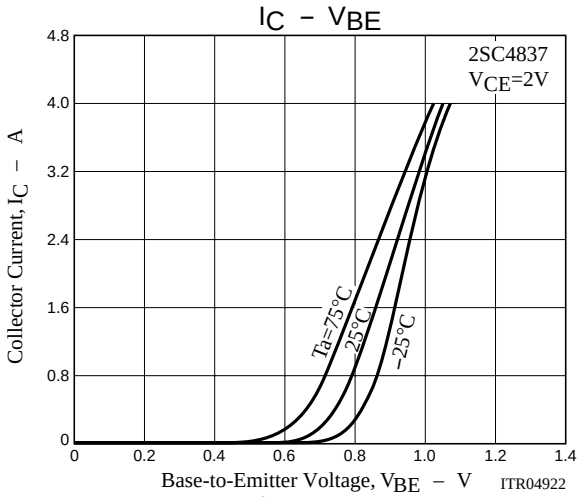


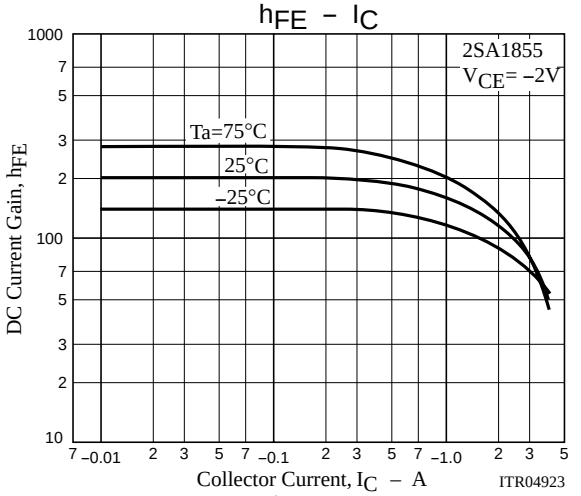


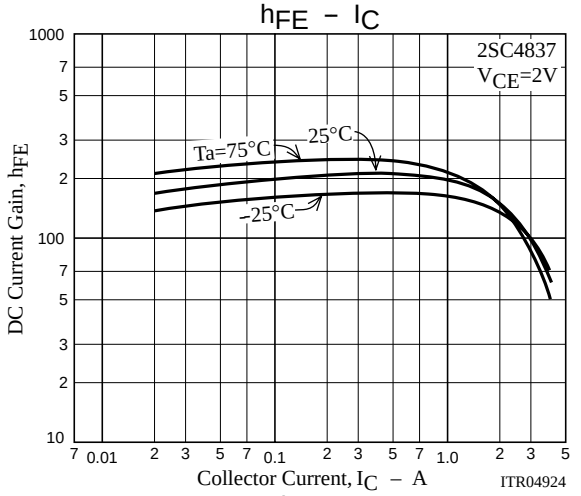


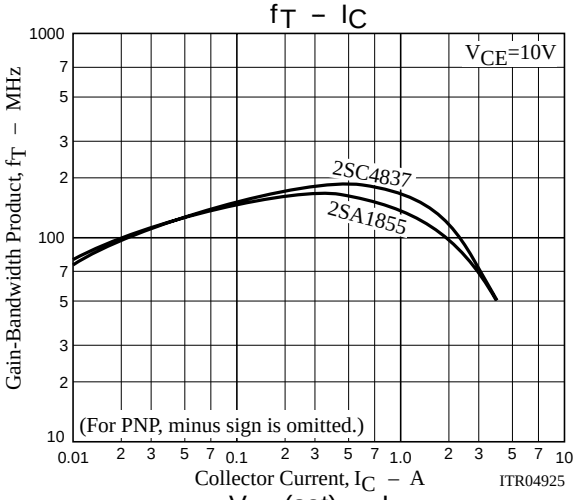


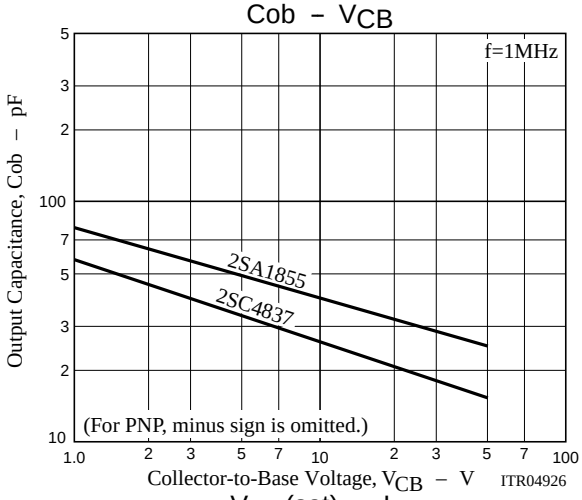

IC – VBE
2SA1855
VCE= –2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
Ta=75°C
25°C
–25°C
ITR04921

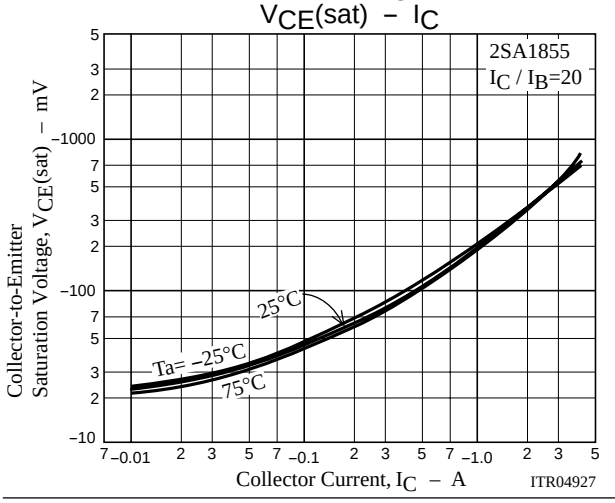

IC – VBE
2SC4837
VCE=2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
Ta=75°C
25°C
–25°C
ITR04922

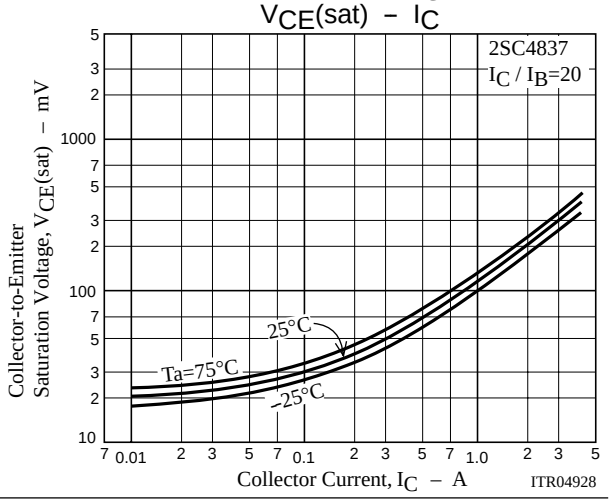

hFE – IC
2SA1855
VCE= –2V
DC Current Gain, hFE
Collector Current, IC – A
Ta=75°C
25°C
–25°C
ITR04923


hFE – IC
2SC4837
VCE=2V
DC Current Gain, hFE
Collector Current, IC – A
Ta=75°C
25°C
–25°C
ITR04924


fT – IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
2SC4837
2SA1855
(For PNP, minus sign is omitted.)
ITR04925


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
2SA1855
2SC4837
(For PNP, minus sign is omitted.)
ITR04926


VCE(sat) – IC
2SA1855
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
25°C
Ta= –25°C
75°C
ITR04927


VCE(sat) – IC
2SC4837
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
25°C
Ta=75°C
–25°C
ITR04928