Ordering number:ENN4135

~~PNP/~~NPN Epitaxial Planar Silicon Transistors

~~2SA1855/~~2SC4837

50V/4A Switching Applications

An ON Semiconductor Company

Applications

· Power supplies, relay drivers, lamp drivers.

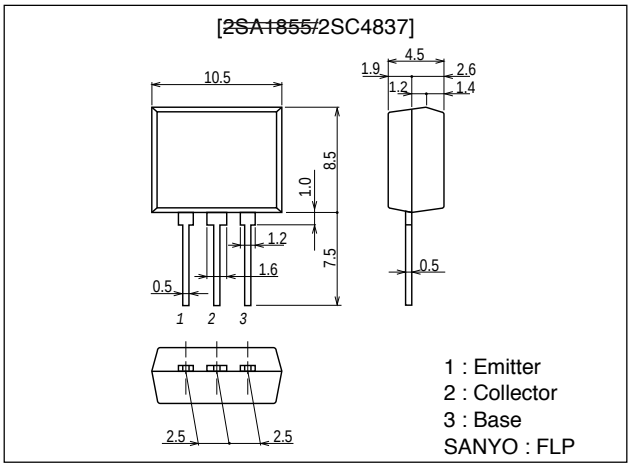
Features

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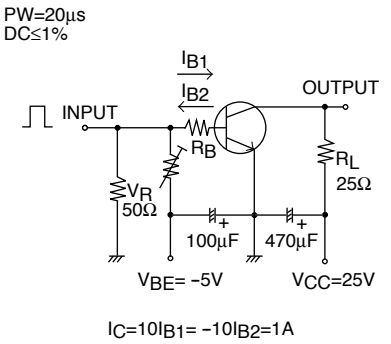
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TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

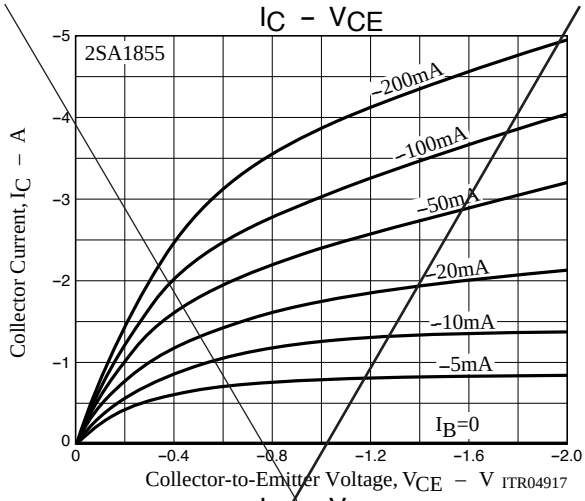
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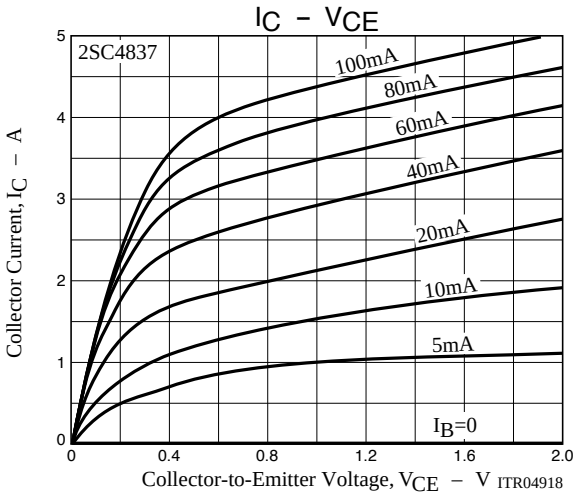
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=~~(−)~~2A, I_B=~~(−)~~100mA		~~(−350)~~	~~(−700)~~	~~mV~~
				190	500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=~~(−)~~2A, I_B=~~(−)~~100mA		~~(−)~~0.94	~~(−)~~1.2	V
Collector-to-Base 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

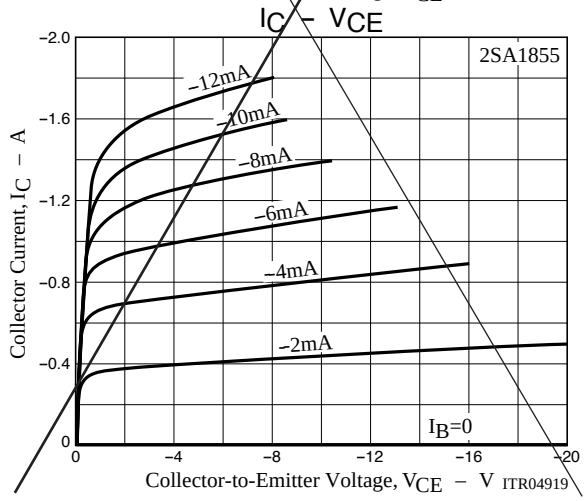
Switching Time Test Circuit

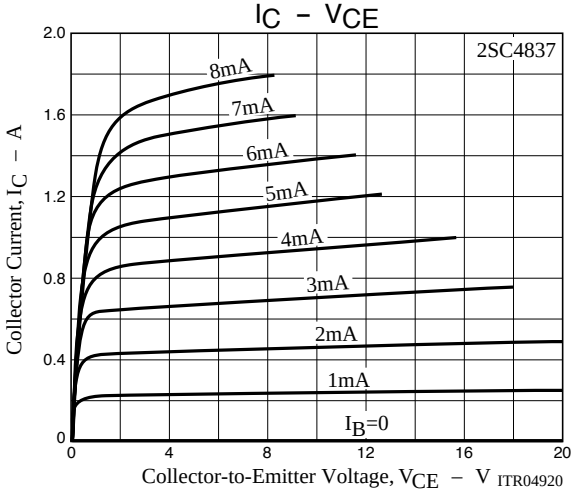


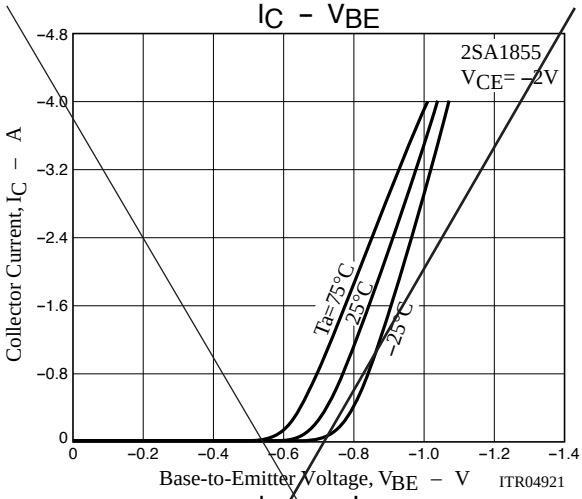
I_C=10I_{B1}= −10I_{B2}=1A

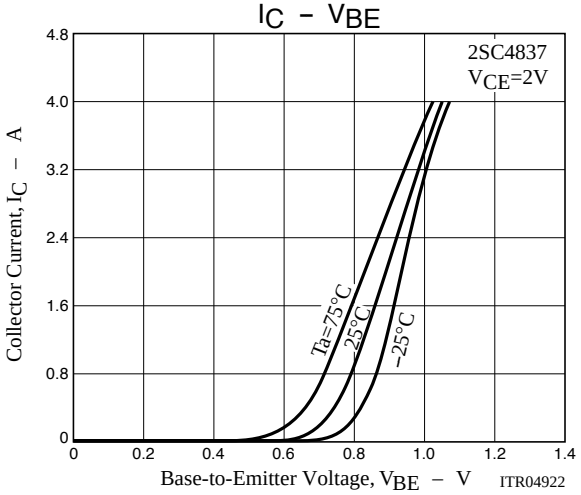


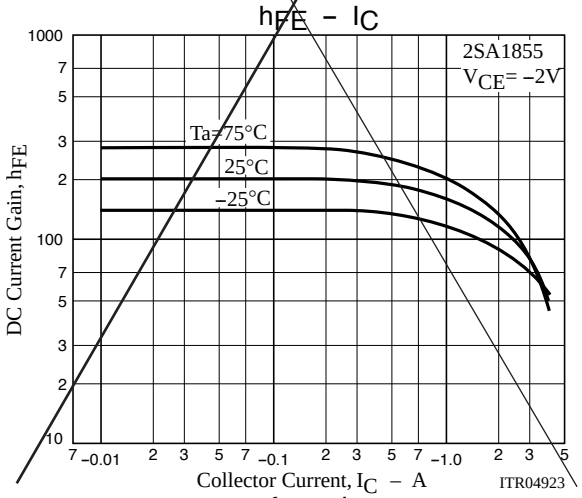


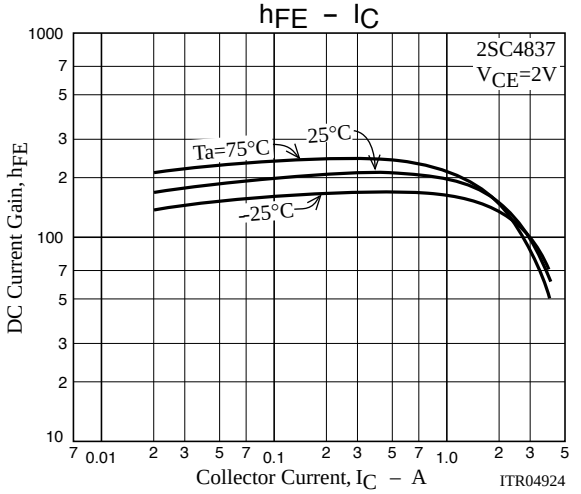


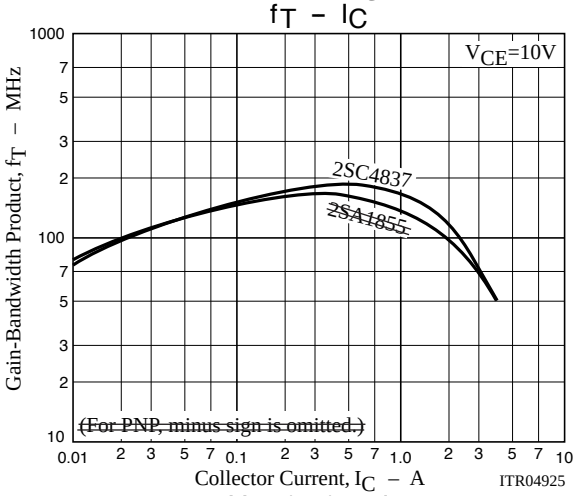


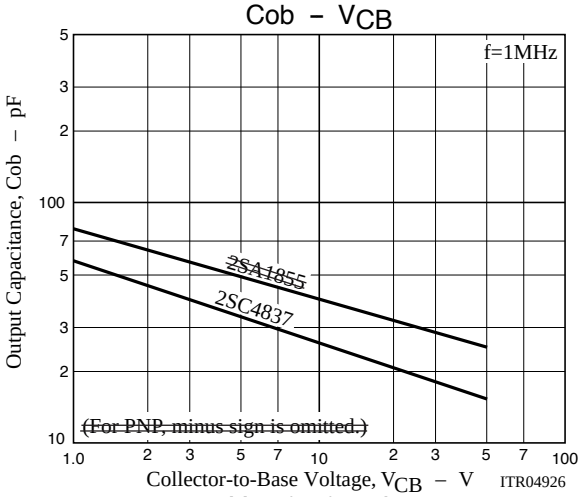

IC – VBE
2SA1855
VCE= –2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
Ta=75°C
25°C
–25°C
ITR04921

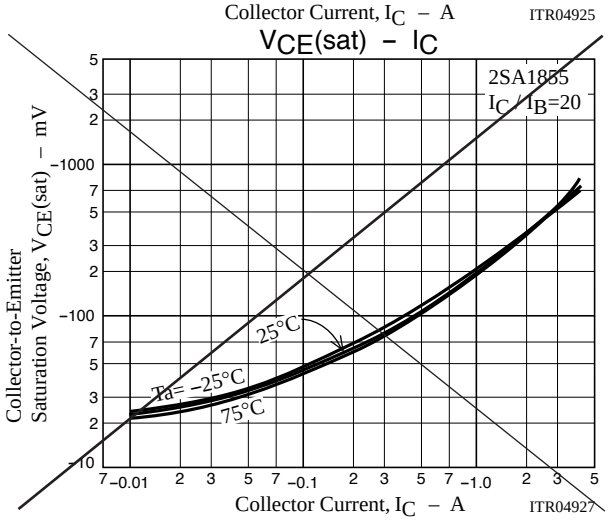

IC – VBE
2SC4837
VCE=2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
Ta=75°C
25°C
–25°C
ITR04922

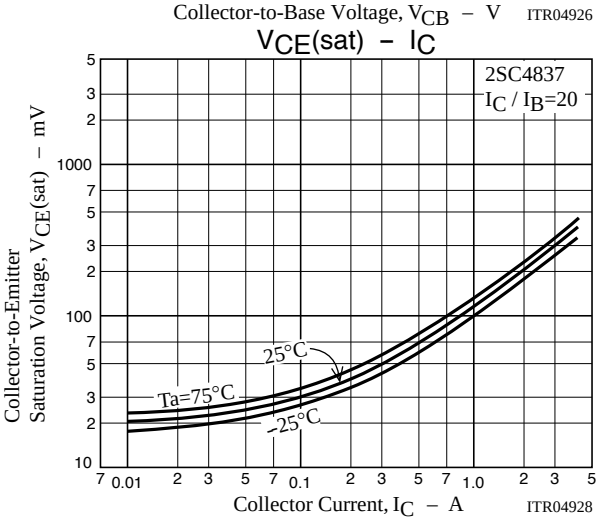

hFE – IC
2SA1855
VCE= –2V
DC Current Gain, hFE
Collector Current, IC – A
Ta=75°C
25°C
–25°C
ITR04923

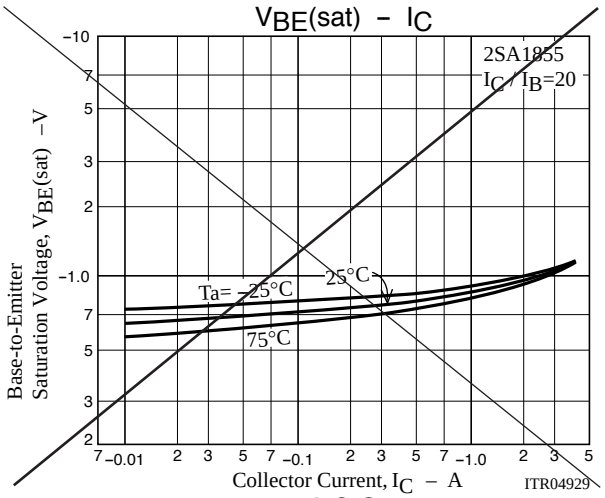

hFE – IC
2SC4837
VCE=2V
DC Current Gain, hFE
Collector Current, IC – A
Ta=75°C
25°C
–25°C
ITR04924

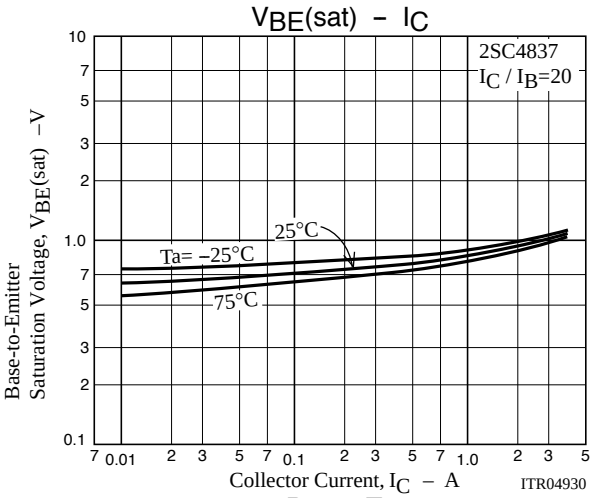

fT – IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
2SC4837
~~2SA1855~~
(For PNP, minus sign is omitted.)
ITR04925

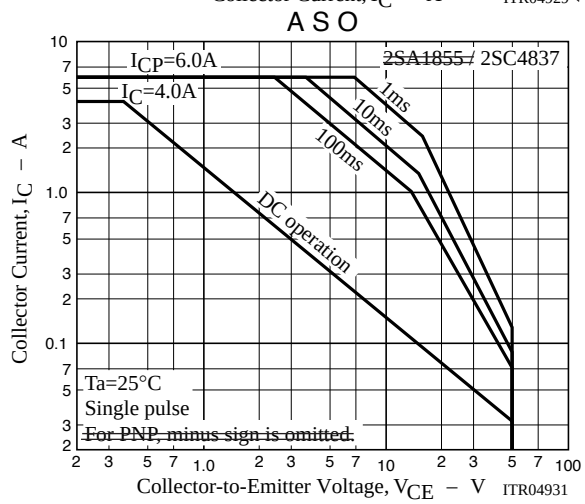

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
~~2SA1855~~
2SC4837
(For PNP, minus sign is omitted.)
ITR04926

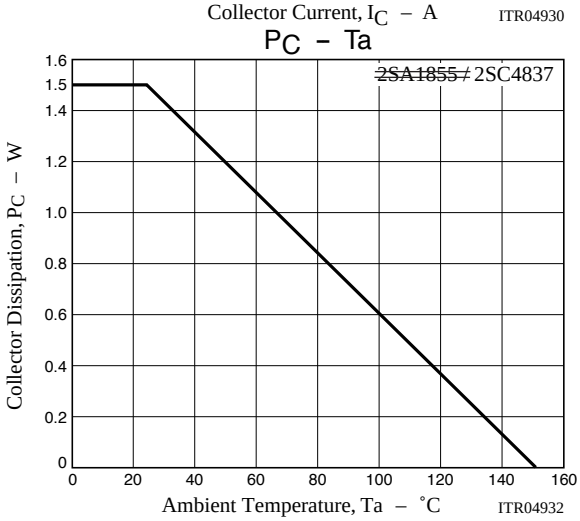

VCE(sat) – IC
2SA1855
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
25°C
Ta= –25°C
75°C
ITR04927


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









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