Ordering number:ENN2926A

PNP Epitaxial Planar Silicon Transistors

2SA1641

High-Current Switching Applications

Features

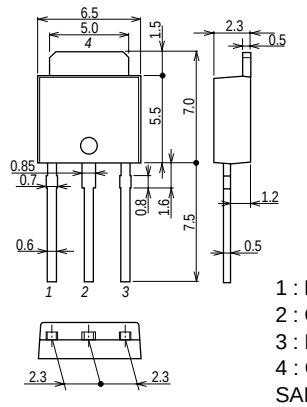
- Adoption of FBET, MBIT processes.
- Low saturation voltage.
- Fast switching speed.
- Large current capacity.
- Small and slim package making it easy to make 2SA1641-used set smaller.

Package Dimensions

unit:mm

2045B

[2SA1641]

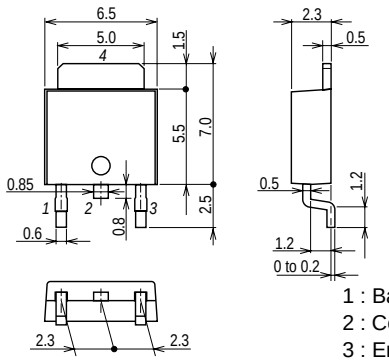


1 : Base
2 : Collector
3 : Emitter
4 : Collector
SANYO : TP

unit:mm

2044B

[2SA1641]



1 : Base
2 : Collector
3 : Emitter
4 : Collector
SANYO : TP-FA

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

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		–25	V
Collector-to-Emitter Voltage	V_{CEO}		–20	V
Emitter-to-Base Voltage	V_{EBO}		–5	V
Collector Current	I_C		–8	A
Colletor Current (Pulse)	I_{CP}		–12	A
Base Current	I_B		–1.5	A
Collector Dissipation	P_C		1	W
		Tc=25˚C	15	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

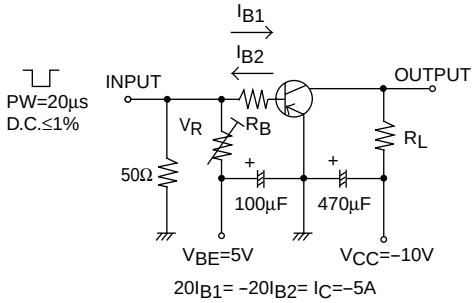
Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=–20V, 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=–500mA	100*		400*	
	$h_{FE}2$	V_{CE}=–2V, I_C=–6A	60			
Gain-Bandwidth Product	f_T	V_{CE}=–2V, I_C=–500mA		200		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=–5A, I_B=–250mA		–220	–400	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=–5A, I_B=–250mA		–1	–1.3	V
Collector Output Capacitance	C_{ob}	V_{CB}=–10V, f=1MHz		85		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0	–25			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–20			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, I_C=0	–5			V
Turn-ON Time	t_{on}	See specified Test Circuit		30	300	ns
Storage Time	t_{stg}	See specified Test Circuit		200	800	ns
Fall Time	t_f	See specified Test Circuit		15	150	ns

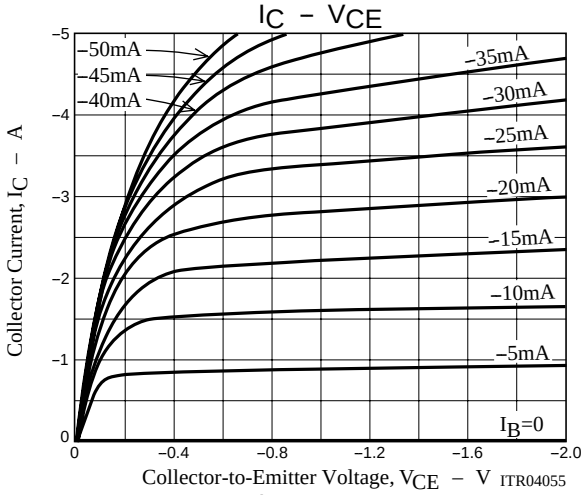
* : The 2SA1641 is classified by 500mA h_{FE} as follows :

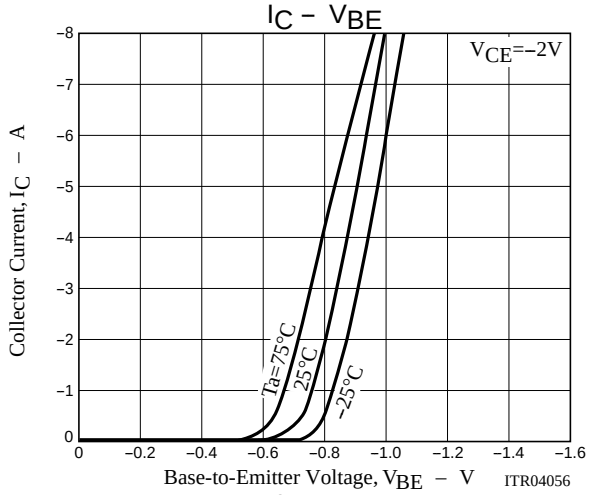
Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

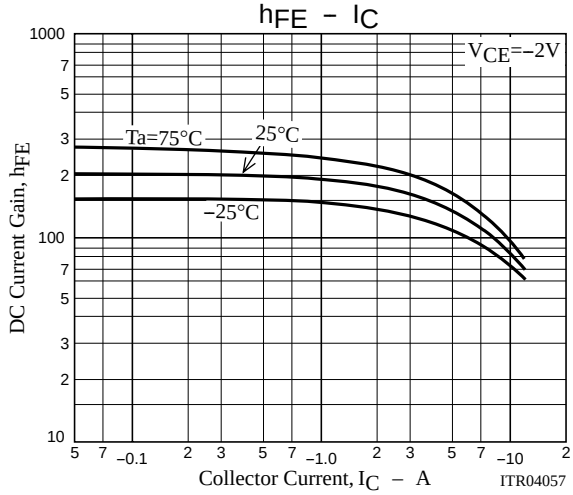
Switching Time Test Circuit

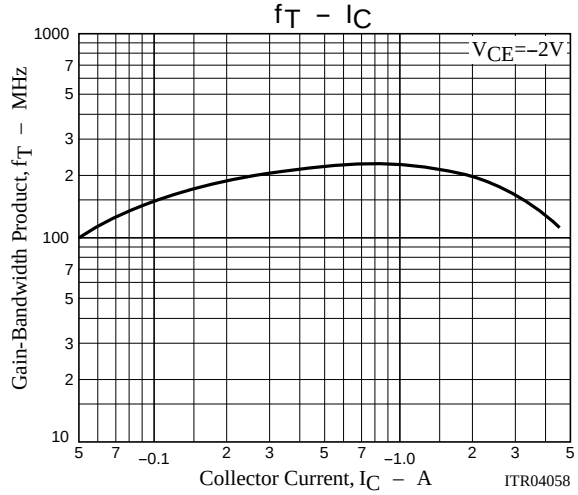


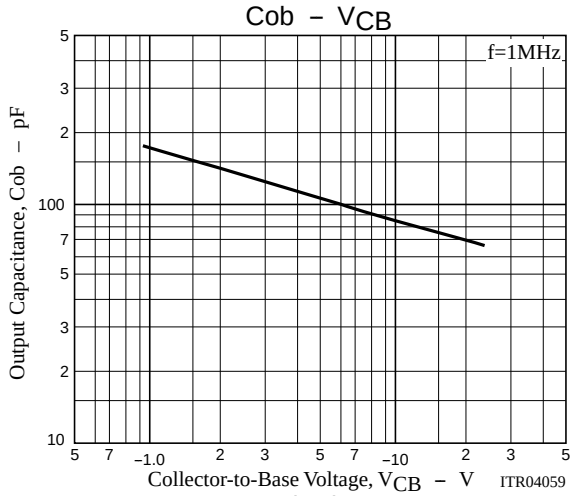
$20I_{B1}$= –$20I_{B2}$= I_C=–5A

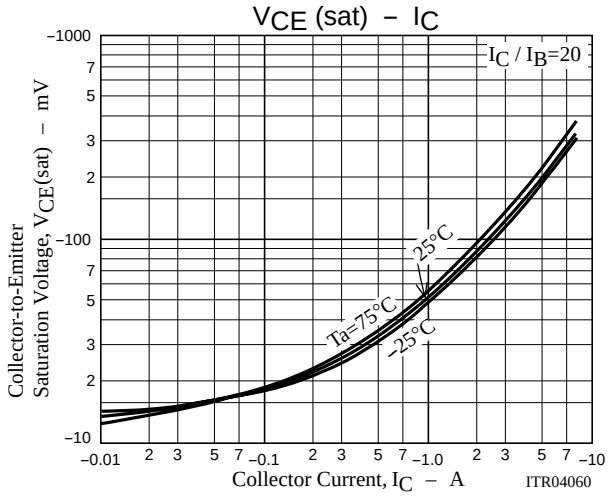

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR04055
–50mA
–45mA
–40mA
–35mA
–30mA
–25mA
–20mA
–15mA
–10mA
–5mA
IB=0


IC – VBE
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
ITR04056
VCE=–2V
Ta=75°C
25°C
–25°C


hFE – IC
DC Current Gain, hFE
Collector Current, IC – A
ITR04057
VCE=–2V
Ta=75°C
25°C
–25°C


fT – IC
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
ITR04058
VCE=–2V


Cob – VCB
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR04059
f=1MHz


VCE (sat) – IC
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
ITR04060
IC / IB=20
25°C
Ta=75°C
–25°C