Ordering number : ENA1420

SANYO Semiconductors
DATA SHEET

ECH8102 — PNP Epitaxial Planar Silicon Transistor
High-Current Switching Applications

Applications

- High-power IGBT / MOSFET gate drivers, DC / DC converters, lamp drivers, motor drivers.

Features

- Adoption of FBET, MBIT process.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High speed switching.
- High allowable power dissipation.
- Halogen free compliance.
- IECO is guaranteed for preventing reverse flow from the collector to the emitter.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		-30	V
Collector-to-Emitter Voltage	V_{CES}		-30	V
Collector-to-Emitter Voltage	V_{CEO}		-30	V
Emitter-to-Base Voltage	V_{EBO}		-6	V
Collector Current	I_C		-12	A
Collector Current (Pulse)	I_{CP}		-24	A
Base Current	I_B		-1.2	A
Collector Dissipation	P_C	When mounted on ceramic substrate (900mm^2×0.8mm)	1.6	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Marking : GB

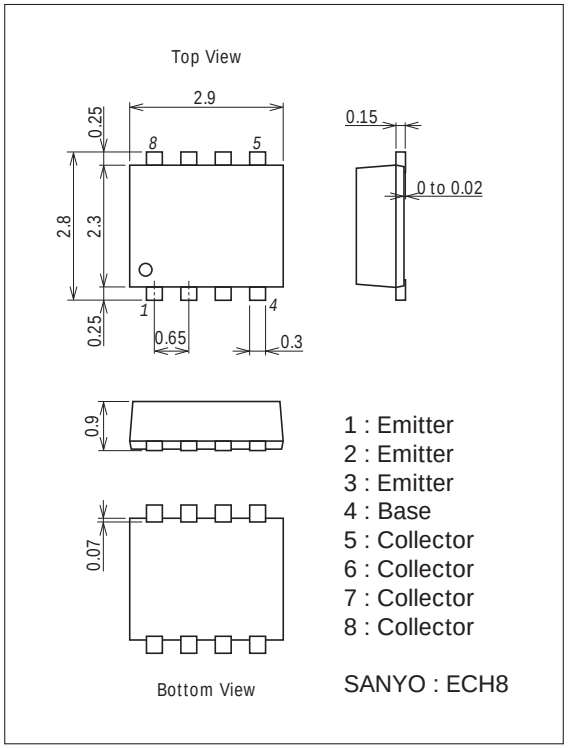
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}= -30V, I_E=0A			-0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}= -4V, I_C=0A			-0.1	μA
Emitter Cutoff Current	I_{ECO}	V_{EC}= -4.5V, I_C=0A			-1	μA
DC Current Gain	$h_{FE}1$	V_{CE}= -2V, I_C= -500mA	200		560	
	$h_{FE}2$	V_{CE}= -2V, I_C= -4A	150			
	$h_{FE}3$	V_{CE}= -2V, I_C= -10A	100			
Gain-Bandwidth Product	f_T	V_{CE}= -10V, I_C= -500mA		140		MHz
Output Capacitance	Cob	V_{CB}= -10V, f=1MHz		120		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)1	I_C= -6A, I_B= -300mA		-80	-135	mV
	V_{CE}(sat)2	I_C= -2A, I_B= -40mA		-50	-85	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C= -2A, I_B= -40mA		-0.85	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C= -10μA, I_E=0A	-30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	I_C= -100μA, R_{BE}=0Ω	-30			V
	$V_{(BR)CEO}$	I_C= -1mA, R_{BE}=∞	-30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E= -10μA, I_C=0A	-6			V
Turn-On Time	t_{on}	See specified Test Circuit.		91		ns
Storage Time	t_{stg}	See specified Test Circuit.		125		ns
Fall Time	t_f	See specified Test Circuit.		17		ns

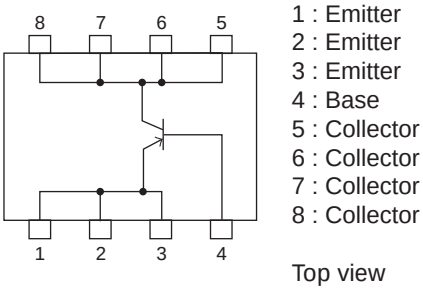
Package Dimensions

unit : mm (typ)

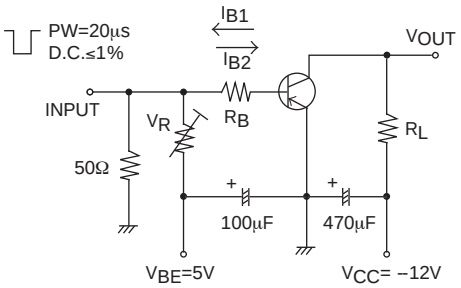
7011A-005



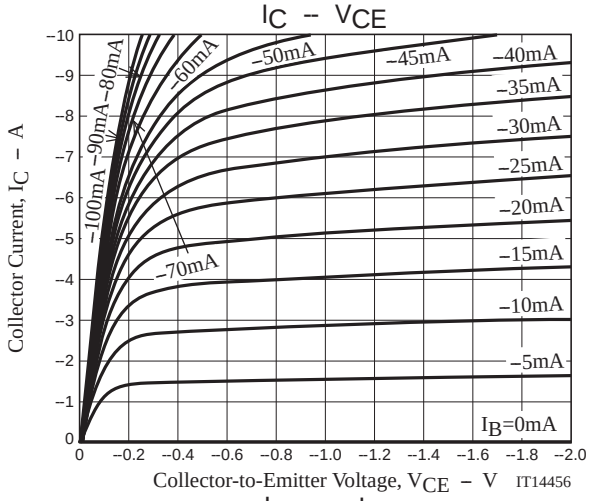
Electrical Connection

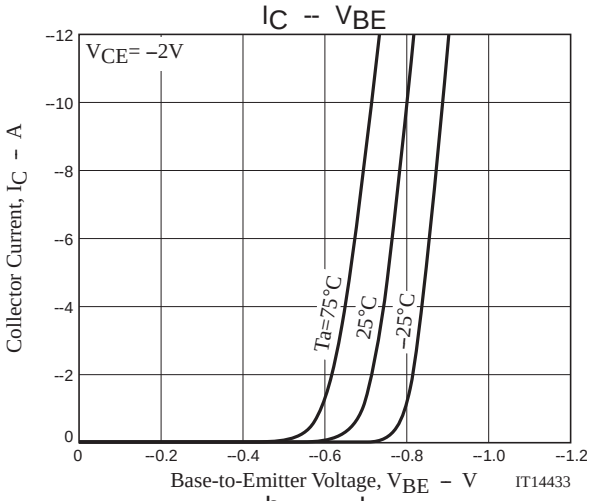


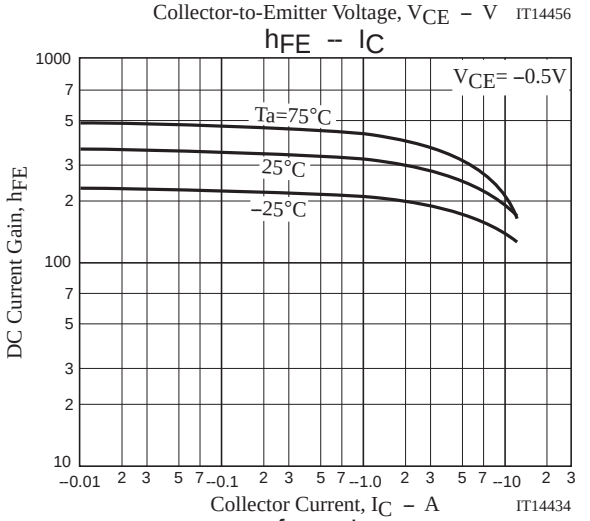
Switching Time Test Circuit

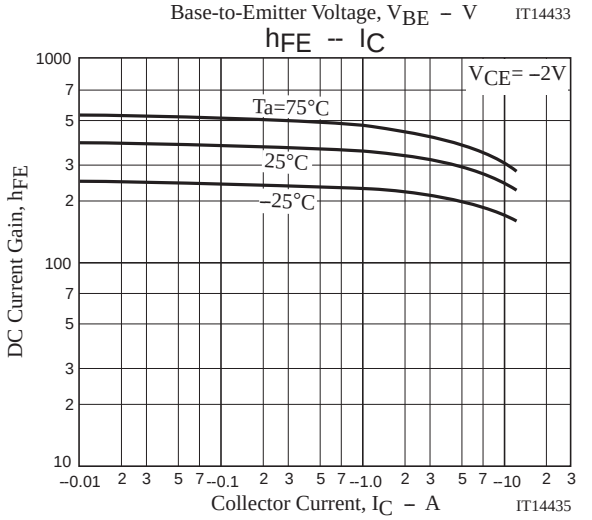


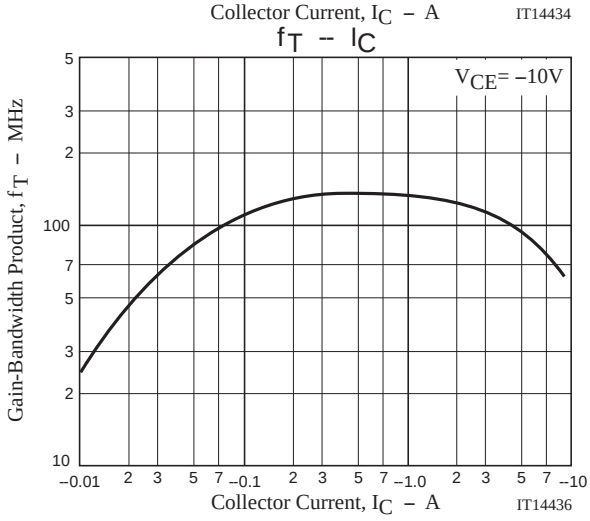
$I_C = -50I_{B1} = 25I_{B2} = -5A$

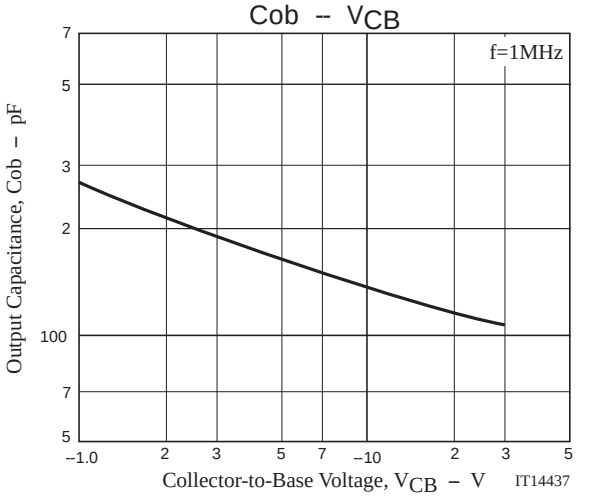


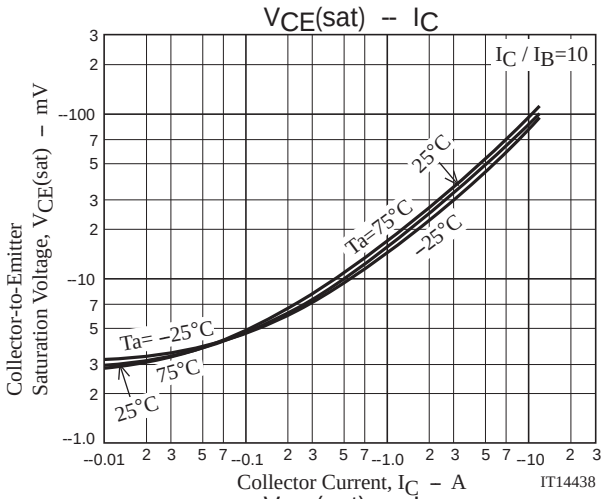


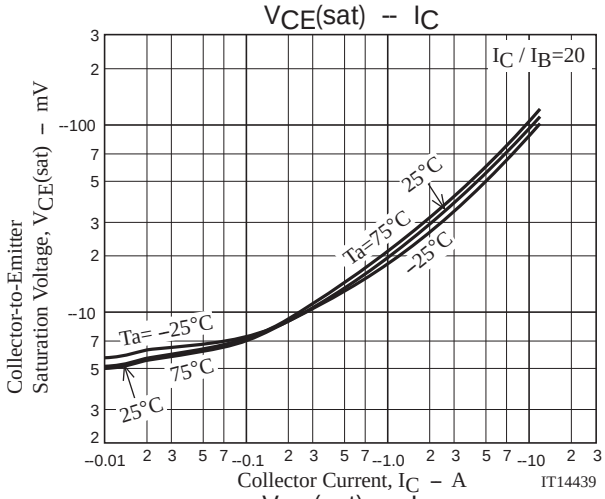


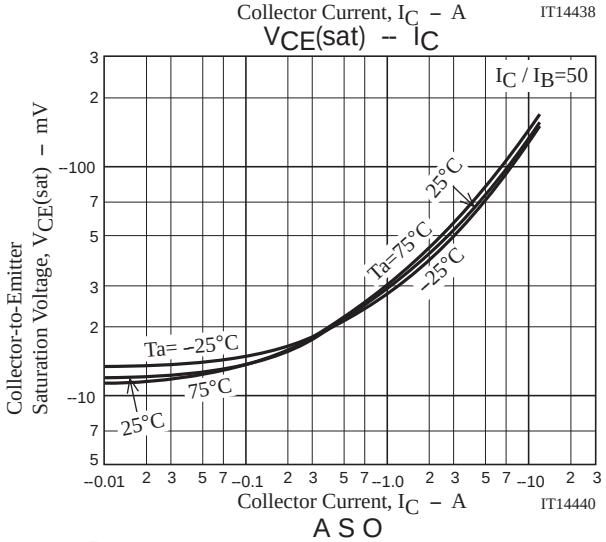


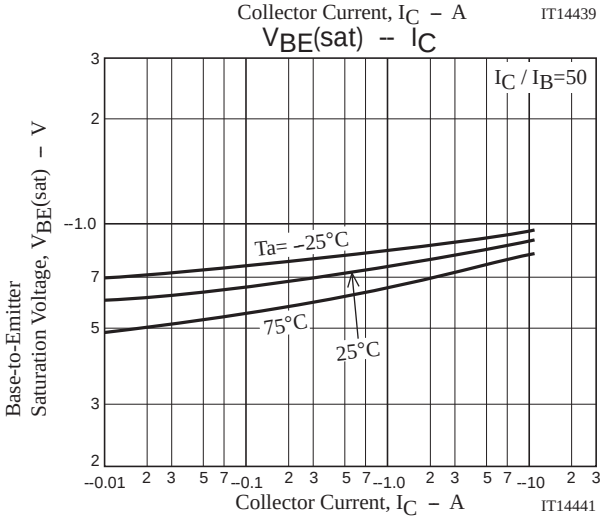


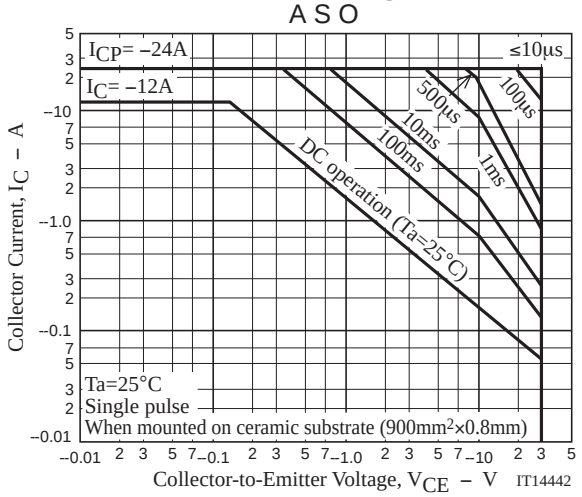


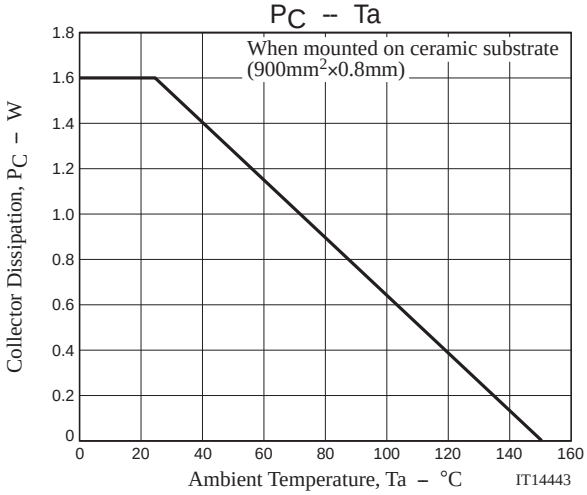

VCE(sat) -- IC
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
Ta= –25°C
75°C
25°C
Ta=75°C
25°C
–25°C
IT14438


VCE(sat) -- IC
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
Ta= –25°C
75°C
25°C
Ta=75°C
25°C
–25°C
IT14439


VCE(sat) -- IC
IC / IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
Ta= –25°C
75°C
25°C
Ta=75°C
25°C
–25°C
IT14440


VBE(sat) -- IC
IC / IB=50
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
Ta= –25°C
75°C
25°C
IT14441


A S O
ICP= –24A
IC= –12A
≤10μs
100μs
500μs
10ms
100ms
1ms
DC operation (Ta=25°C)
Ta=25°C
Single pulse
When mounted on ceramic substrate (900mm2×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT14442


PC -- Ta
When mounted on ceramic substrate
(900mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT14443