Ordering number : ENA0279A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

NPN Epitaxial Planar Silicon Transistor

2SC6082 — 50V / 15A High-Speed Switching Applications

Applications

- High-speed switching applications (switching regulator, driver circuit)

Features

- Adoption of MBIT process
- Low collector-to-emitter saturation voltage
- Large current capacitance
- High-speed switching

Specifications

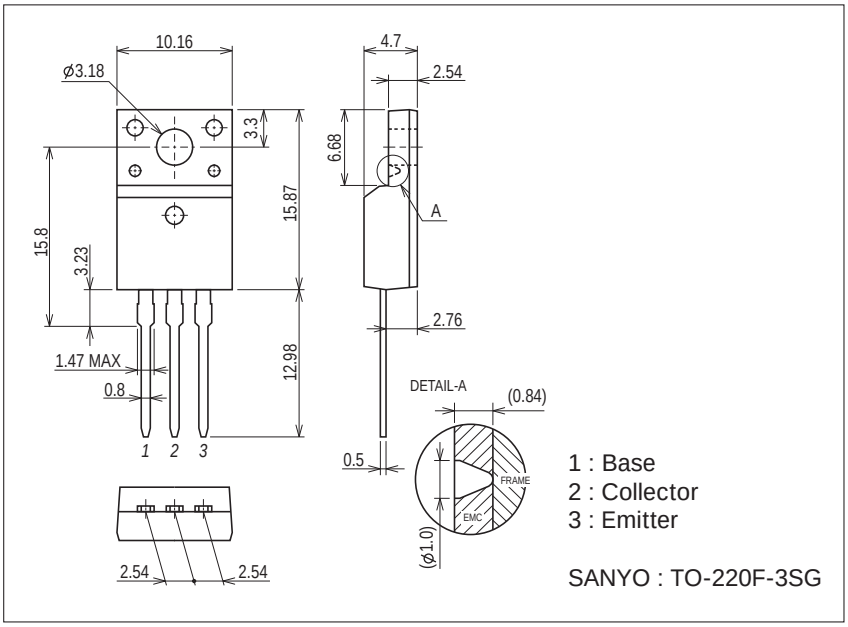
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		60	V
Collector-to-Emitter Voltage	V_{CES}		60	V
	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		15	A
Collector Current (Pulse)	I_{CP}	PW≤10μs, duty cycle≤1%	20	A
Base Current	I_B		3	A
Collector Dissipation	P_C		2	W
		Tc=25°C	23	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Package Dimensions

unit : mm (typ)

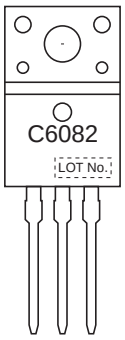
7529-002



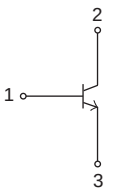
Product & Package Information

- Package : TO-220F-3SG
- JEITA, JEDEC : SC-67
- Minimum Packing Quantity : 50 pcs./magazine

Marking



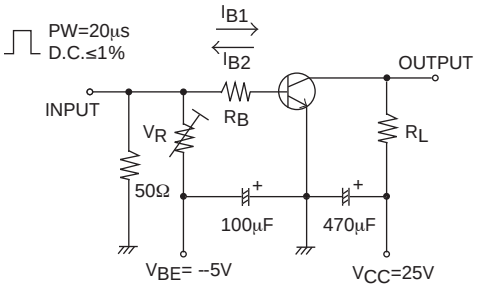
Electrical Connection



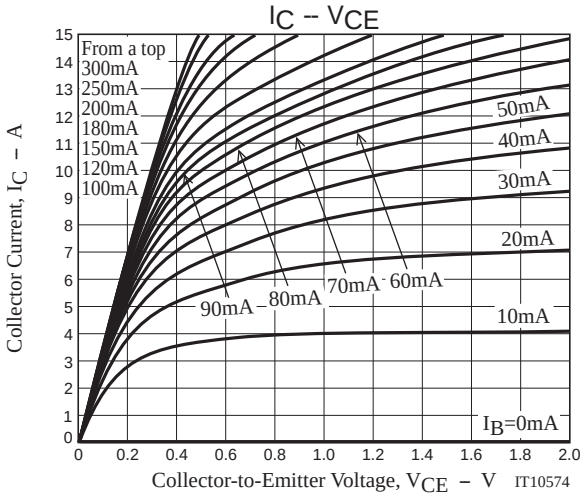
Electrical Characteristics at Ta=25°C

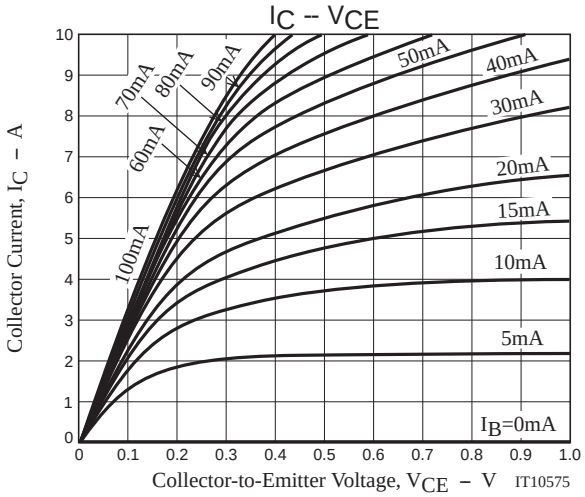
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=40V, I_E=0A			10	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0A			10	μA
DC Current Gain	$h_{FE}1$	V_{CE}=2V, I_C=330mA	200		560	
	$h_{FE}2$	V_{CE}=2V, I_C=10A	50			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=2A		195		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		85		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=7.5A, I_B=375mA		200	400	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=7.5A, I_B=375mA			1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=100μA, I_E=0A	60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	I_C=100μA, R_{BE}=0Ω	60			V
	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=100μA, I_C=0A	6			V
Turn-On Time	t_{on}	See specified Test Circuit		52		ns
Storage Time	t_{stg}			560		ns
Fall Time	t_f			37		ns

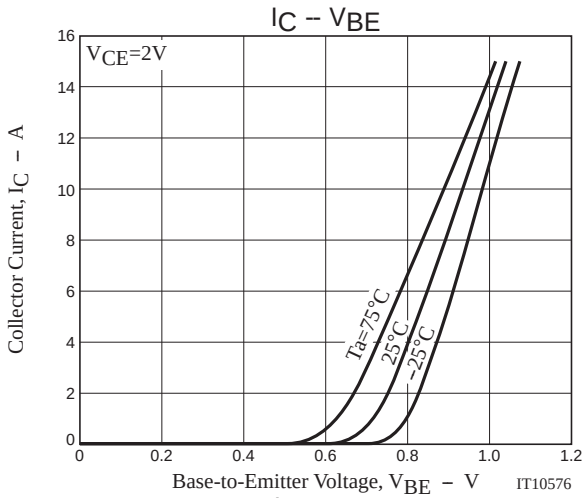
Switching Time Test Circuit

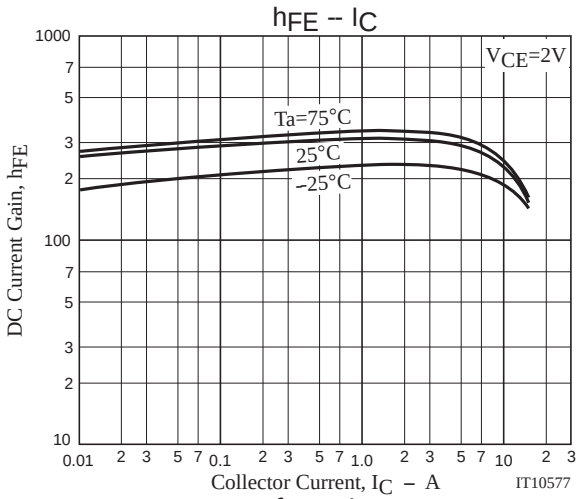


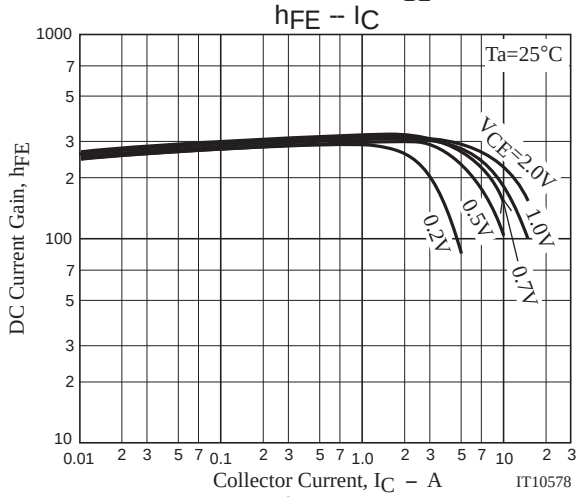
I_C=20I_{B1}= –20I_{B2}=5A

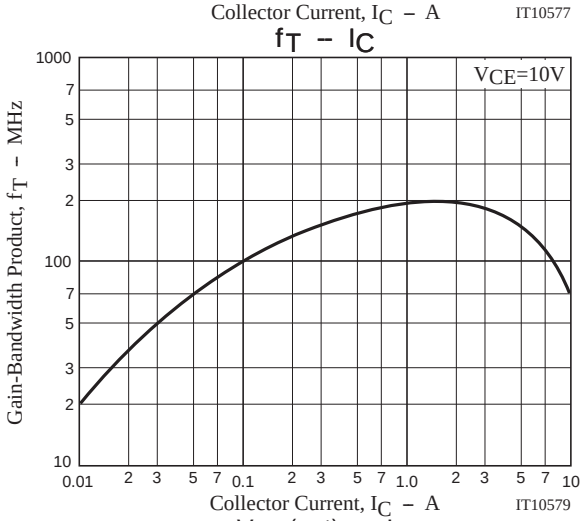


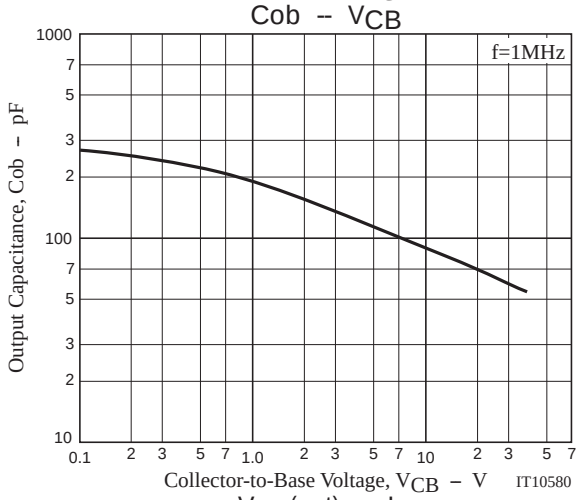


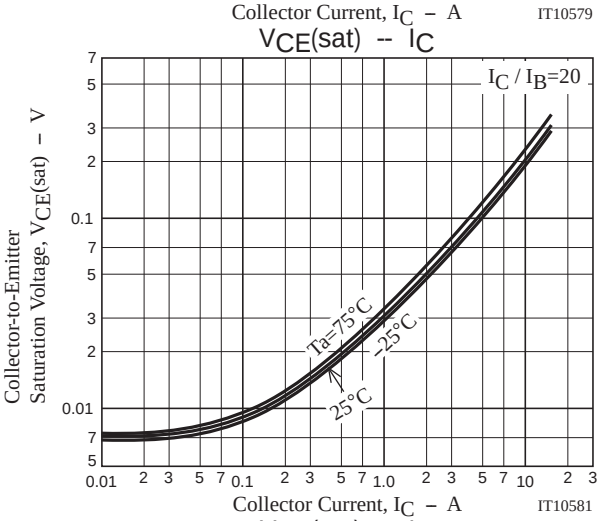

IC – VBE
VCE=2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT10576

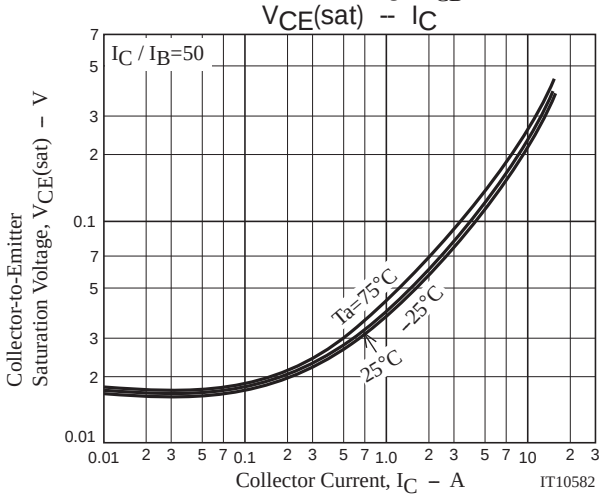

hFE – IC
VCE=2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT10577

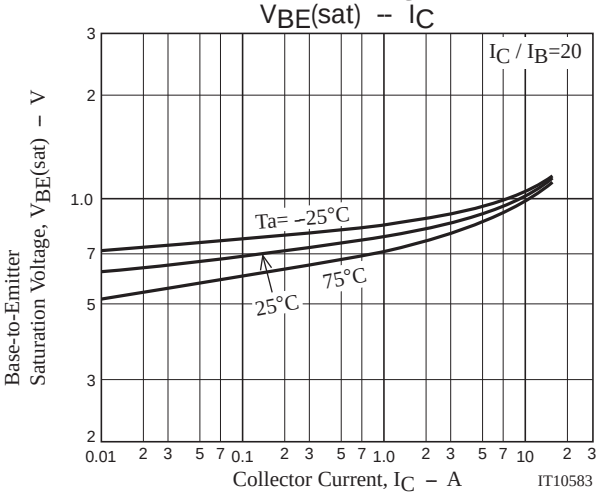

hFE – IC
Ta=25°C
VCE=2.0V
1.0V
0.5V
0.2V
0.7V
DC Current Gain, hFE
Collector Current, IC – A
IT10578


fT – IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT10579

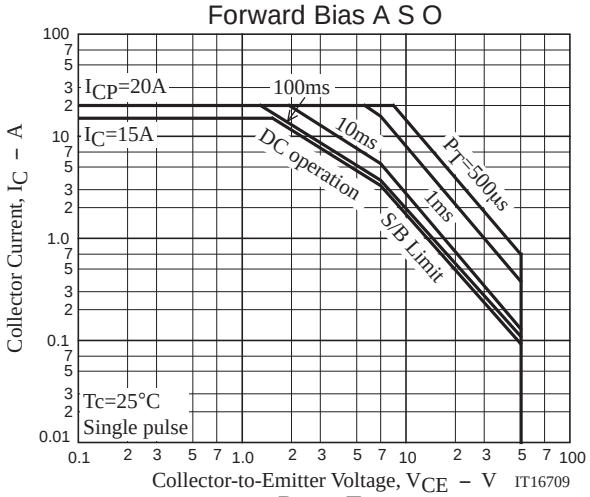

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT10580


VCE(sat) – IC
IC / IB=20
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT10581

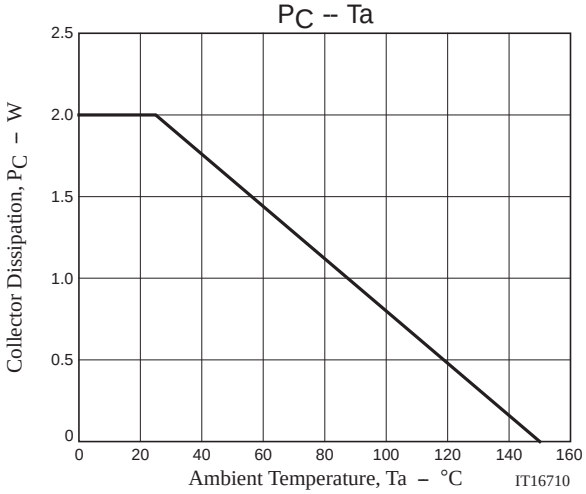

VCE(sat) – IC
IC / IB=50
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT10582


VBE(sat) – IC
IC / IB=20
Ta= –25°C
25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT10583

Forward Bias A S O



P_C -- Ta



P_C -- Tc