



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## 2SC6082 — NPN Epitaxial Planar Silicon Transistor

### 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

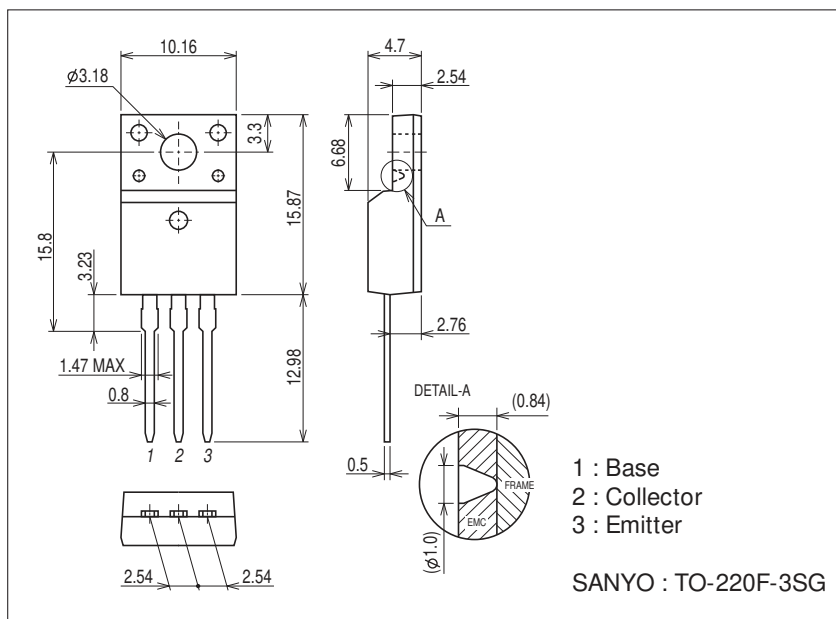
**Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		60	V
Collector-to-Emitter Voltage	V <sub>CES</sub>		60	V
	V <sub>CEO</sub>		50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		6	V
Collector Current	I <sub>C</sub>		15	A
Collector Current (Pulse)	I <sub>CP</sub>	PW≤10μs, duty cycle≤1%	20	A
Base Current	I <sub>B</sub>		3	A
Collector Dissipation	P <sub>C</sub>		2	W
		T <sub>c</sub> =25°C	23	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

#### Package Dimensions

unit : mm (typ)

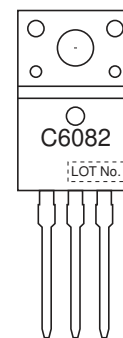
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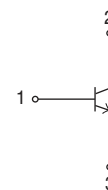
#### Product & Package Information

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

#### Marking



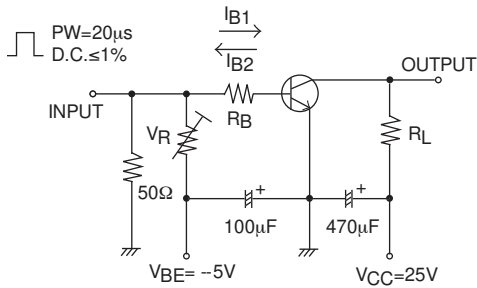
#### Electrical Connection



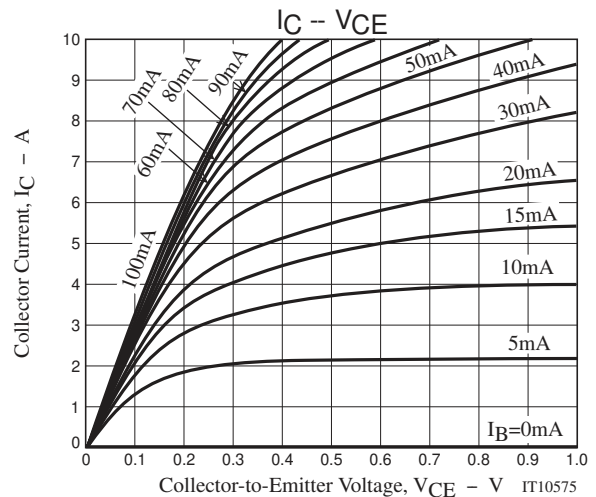
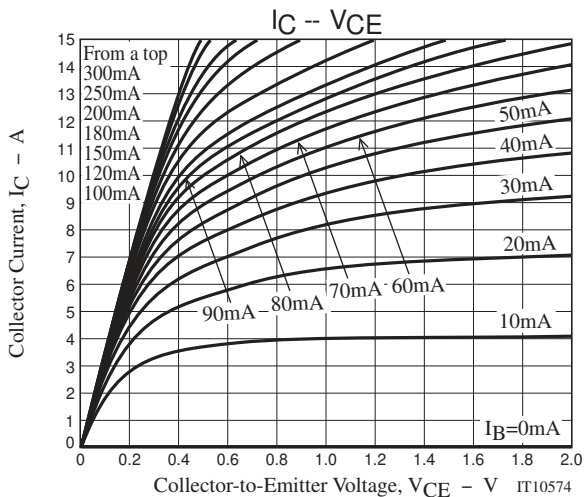
Electrical Characteristics at Ta=25°C

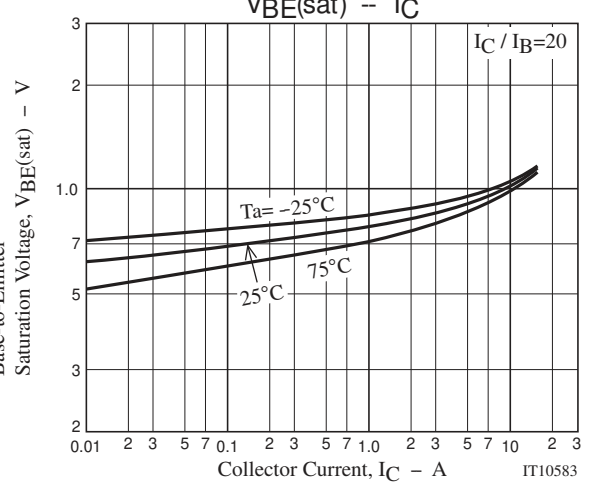
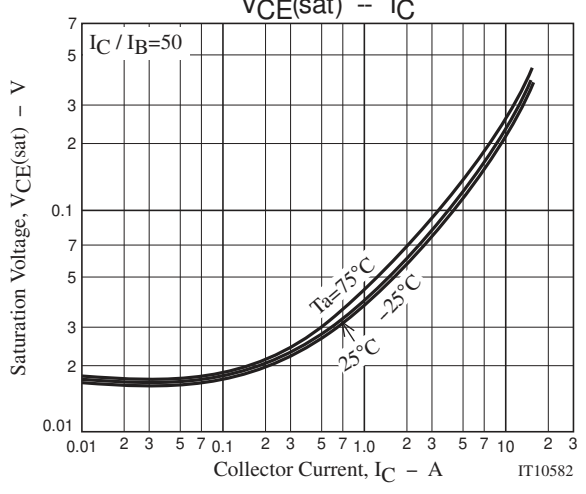
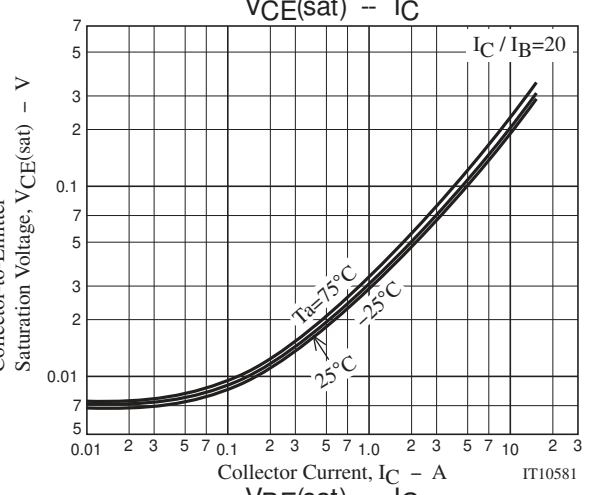
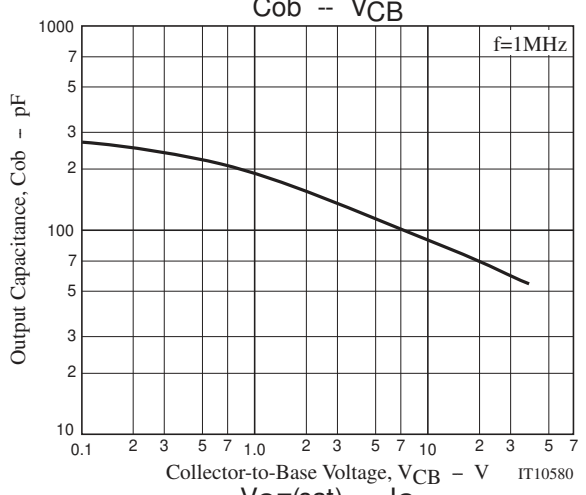
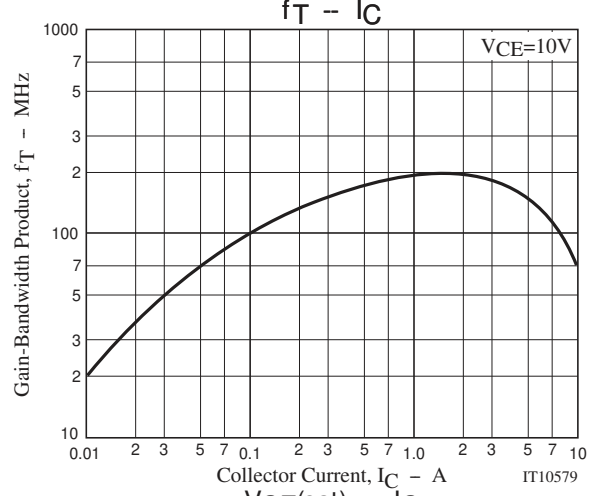
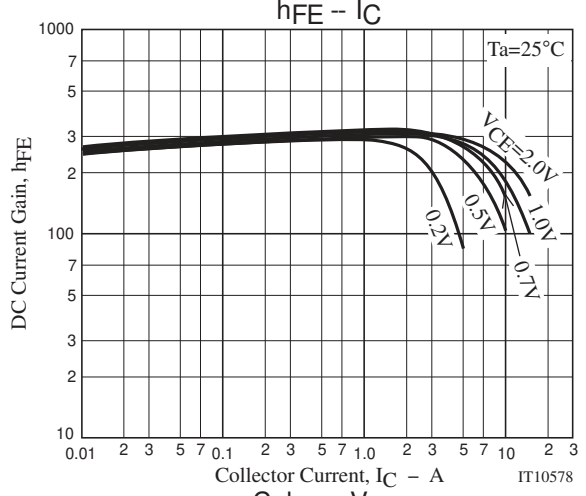
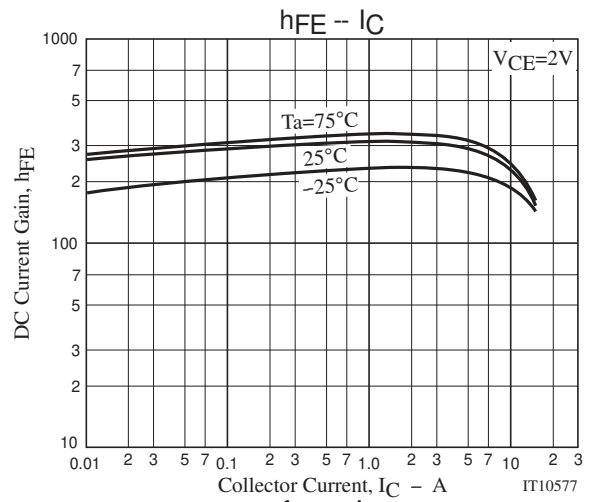
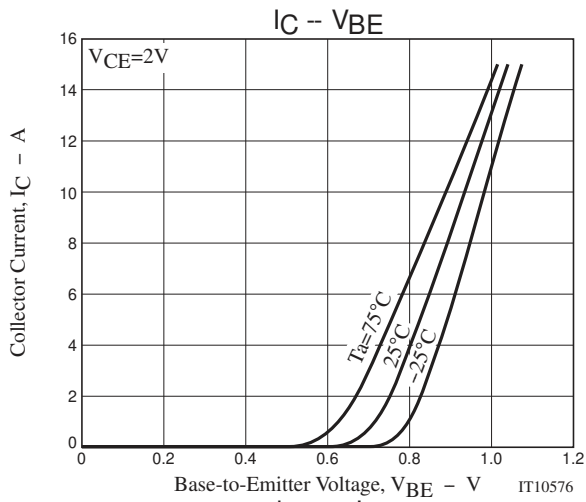
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V <sub>CB</sub> =40V, I <sub>E</sub> =0A			10	μA
Emitter Cutoff Current	IEBO	V <sub>EB</sub> =4V, I <sub>C</sub> =0A			10	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =330mA	200		560	
	h <sub>FE2</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =10A	50			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =2A		195		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, f=1MHz		85		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =7.5A, I <sub>B</sub> =375mA		200	400	mV
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =7.5A, I <sub>B</sub> =375mA			1.2	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0A	60			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CES</sub>	I <sub>C</sub> =100μA, R <sub>BE</sub> =0Ω	60			V
	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	50			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =100μA, I <sub>C</sub> =0A	6			V
Turn-On Time	t <sub>on</sub>	See specified Test Circuit		52		ns
Storage Time	t <sub>stg</sub>			560		ns
Fall Time	t <sub>f</sub>			37		ns

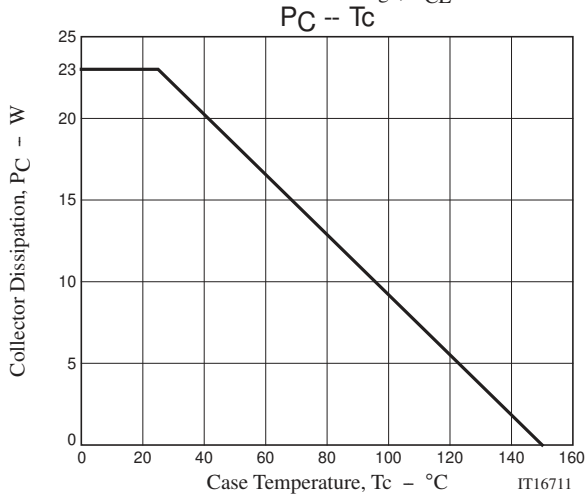
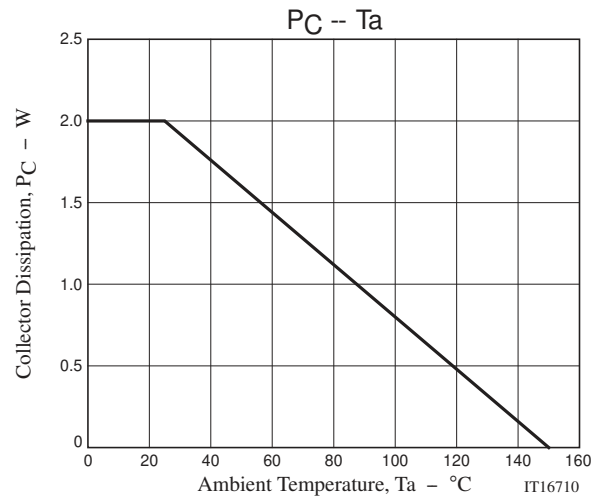
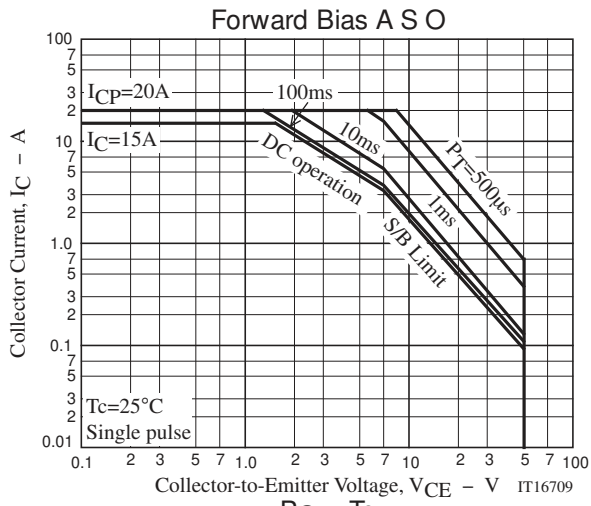
Switching Time Test Circuit



$I_C = 20I_{B1} = -20I_{B2} = 5A$







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