

2SA2222SG — PNP Epitaxial Planar Silicon Transistor

High-Current Switching Applications

Applications

- Relay drivers, lamp drivers, motor drivers

Features

- Adoption of MBIT process
- Large current capacitance ($I_C = -10A$)
- Low collector-to-emitter saturation voltage ($V_{CE(sat)} = -250mV$ (typ.))
- High-speed switching ($t_f = 22ns$ (typ.))

Specifications

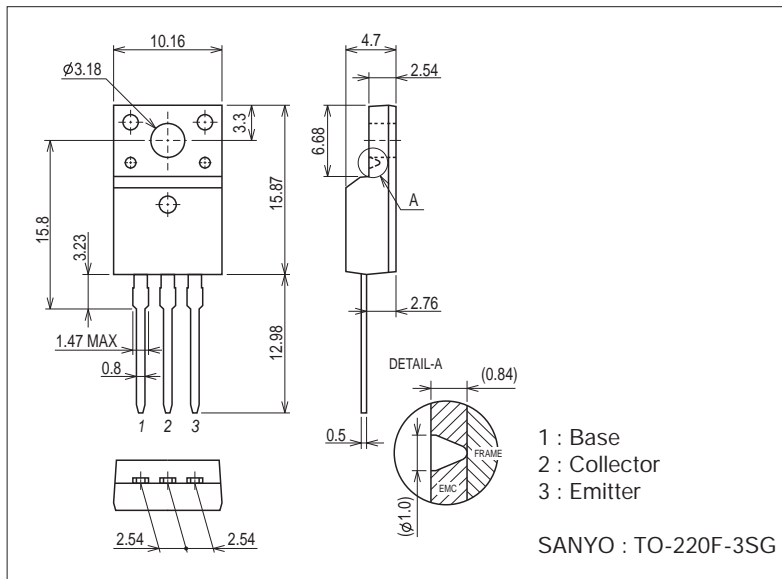
Absolute Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		-50	V
Collector-to-Emitter Voltage	V_{CEO}		-50	V
Emitter-to-Base Voltage	V_{EBO}		-6	V
Collector Current	I_C		-10	A
Collector Current (Pulse)	I_{CP}		-13	A
Base Current	I_B		-2	A
Collector Dissipation	P_C	$T_c = 25^\circ C, P_T \leq 1s$	25	W
Junction Temperature	T_J		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Package Dimensions

unit : mm (typ)

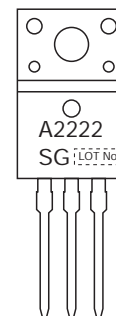
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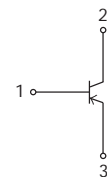
Product & Package Information

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

Marking



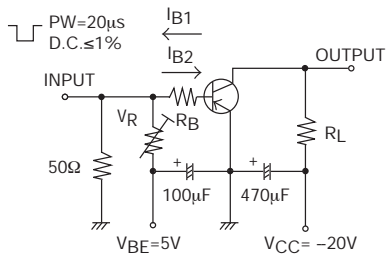
Electrical Connection



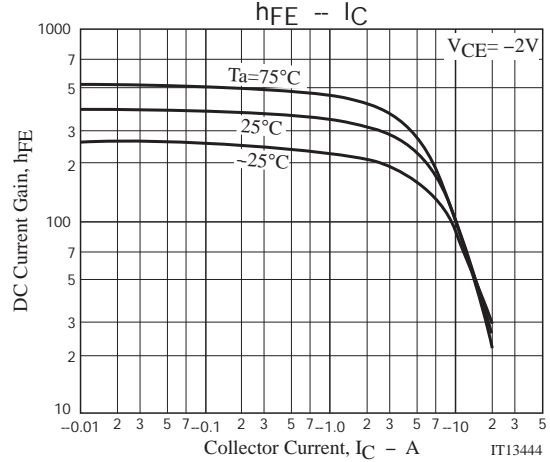
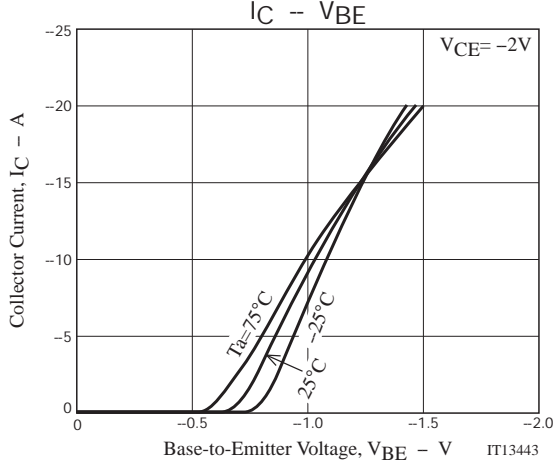
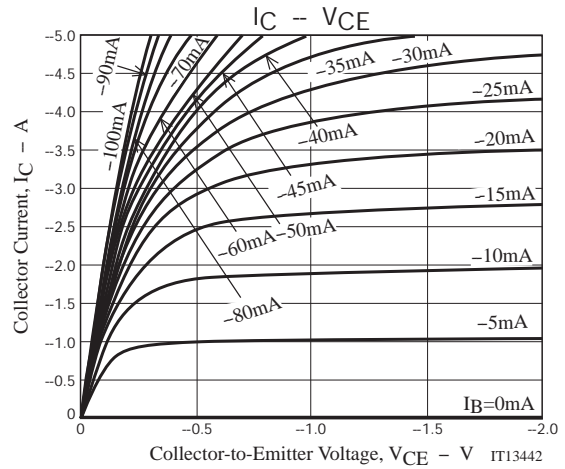
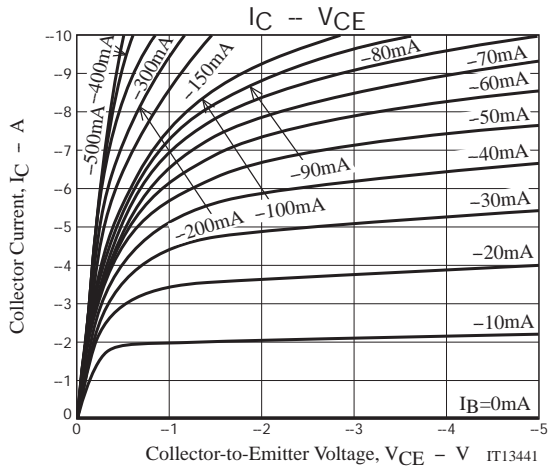
Electrical Characteristics at Ta=25°C

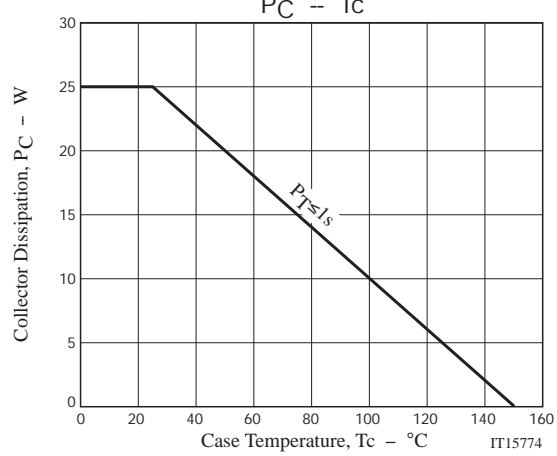
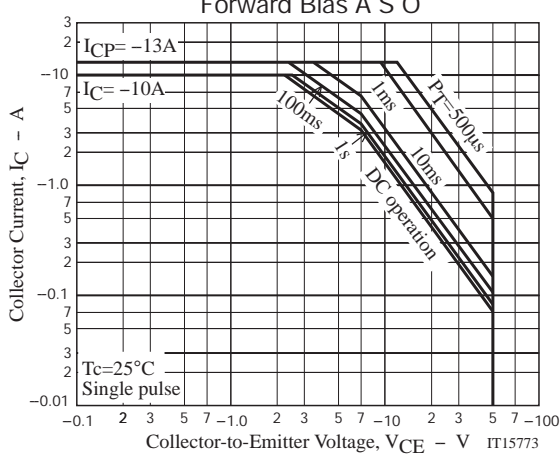
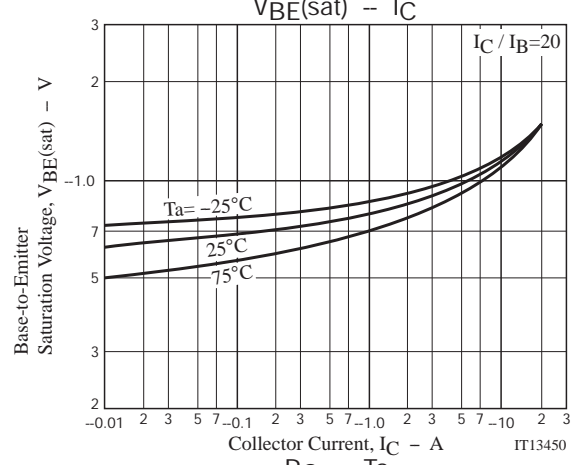
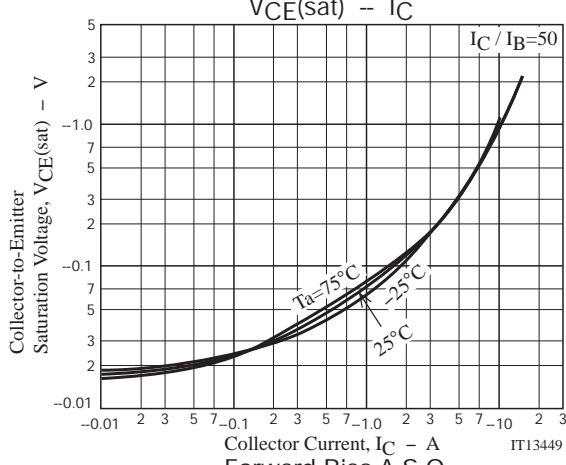
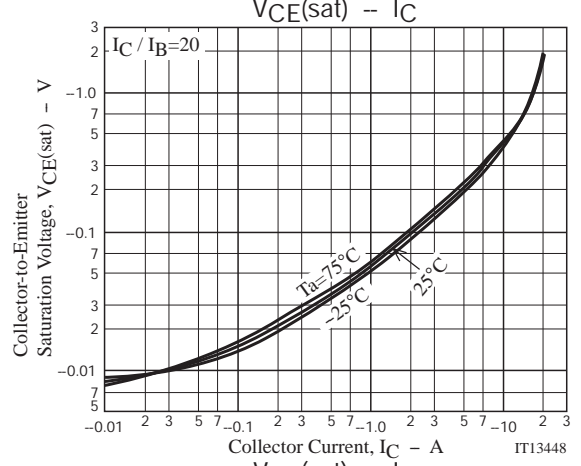
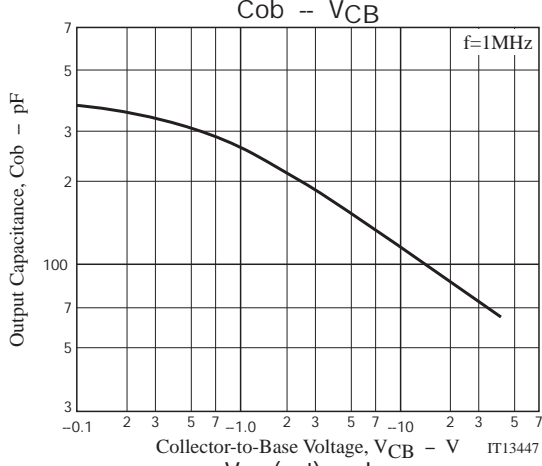
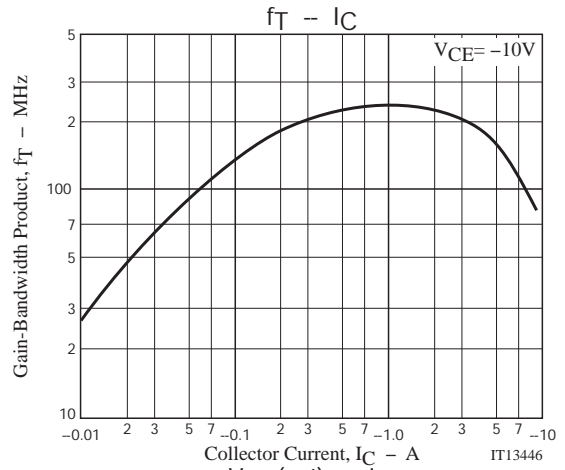
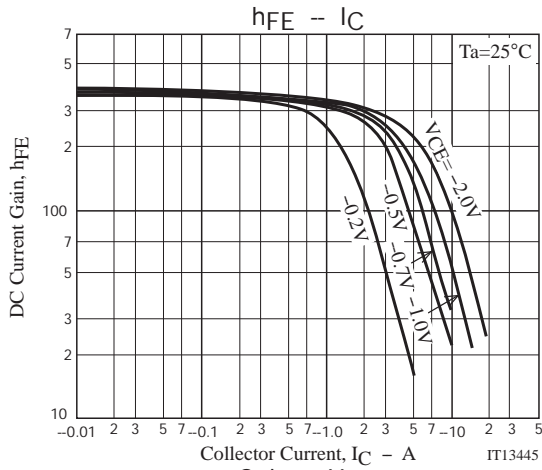
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=-40V, I_E=0A$			-10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4V, I_C=0A$			-10	μA
DC Current Gain	h_{FE}	$V_{CE}=-2V, I_C=-270mA$	150		450	
Gain-Bandwidth Product	f_T	$V_{CE}=-10V, I_C=-1A$		230		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10V, f=1MHz$		115		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-6A, I_B=-300mA$		-250	-500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-6A, I_B=-300mA$			-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-100\mu A, I_E=0A$	-50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA, R_{BE}=\infty$	-50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-100\mu A, I_C=0A$	-6			V
Turn-On Time	t_{on}	See specified Test Circuit.		40		ns
Storage Time	t_{stg}	See specified Test Circuit.		240		ns
Fall Time	t_f	See specified Test Circuit.		22		ns

Switching Time Test Circuit



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





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