



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

PNP Epitaxial Planar Silicon Transistor

2SA2210 — High-Current Switching Applications

Applications

- Relay drivers, lamp drivers, motor drivers.

Features

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

Specifications

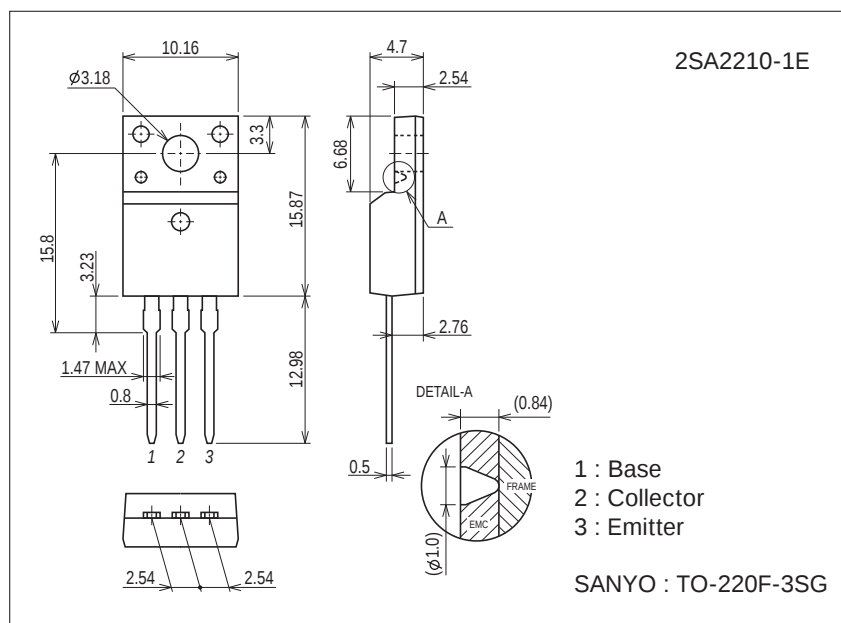
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		-50	V
Collector-to-Emitter Voltage	V_{CE0}		-50	V
Emitter-to-Base Voltage	V_{EB0}		-6	V
Collector Current	I_C		-20	A
Collector Current (Pulse)	I_{CP}		-25	A
Base Current	I_B		-3	A
Collector Dissipation	P_C		2	W
		$T_c=25^\circ\text{C}$	30	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Package Dimensions

unit : mm (typ)

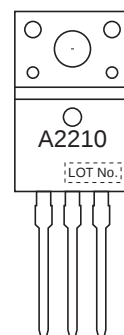
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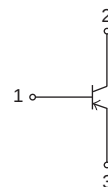
Product & Package Information

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

Marking



Electrical Connection

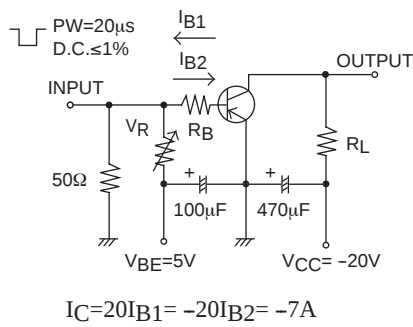


2SA2210

Electrical Characteristics at $T_a=25^{\circ}\text{C}$

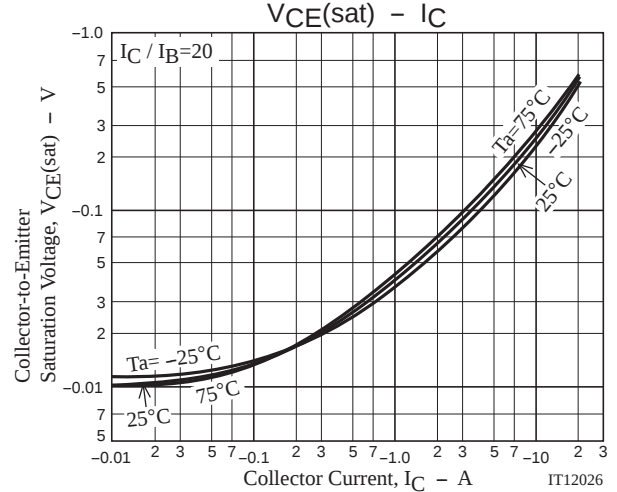
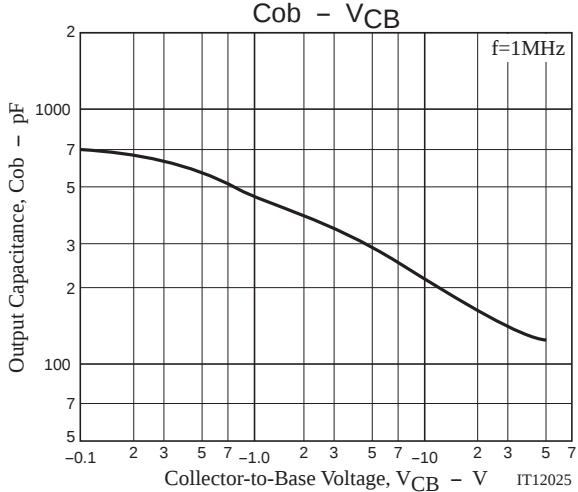
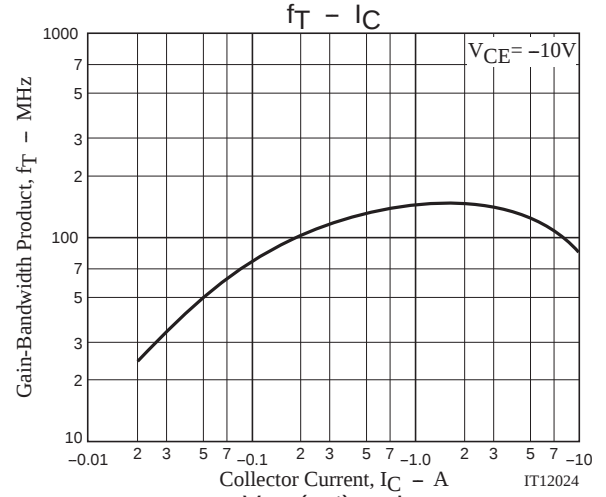
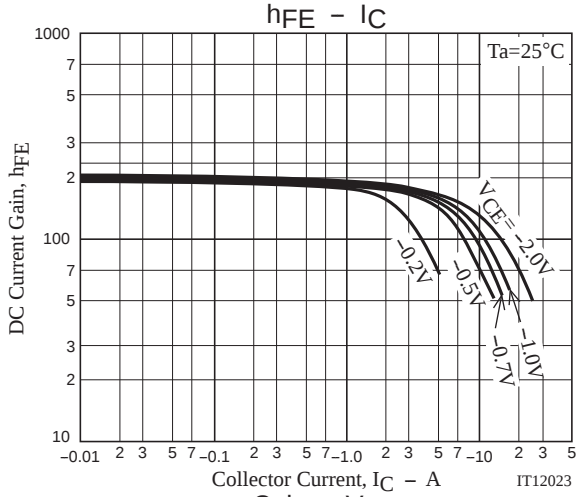
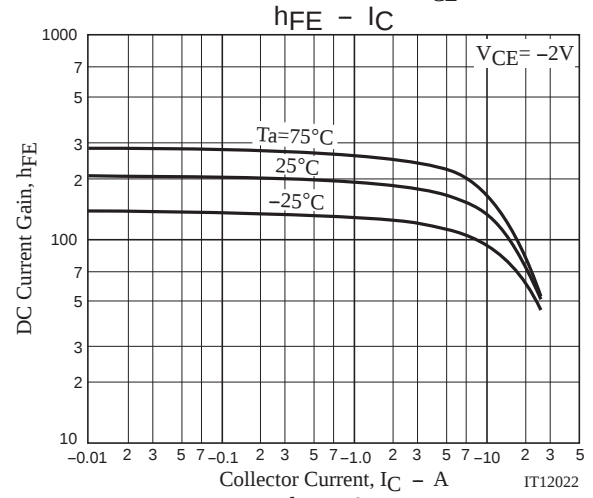
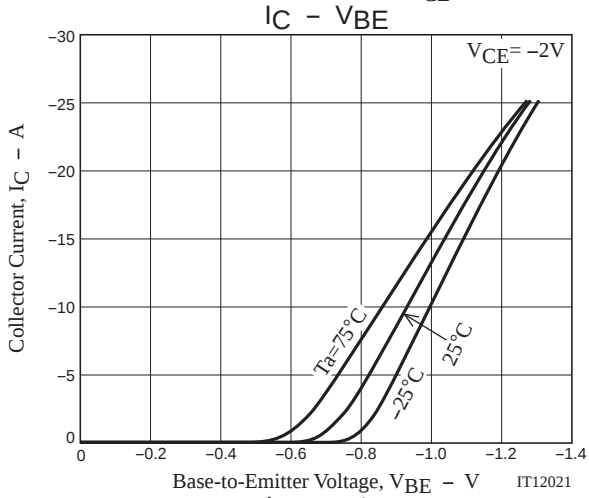
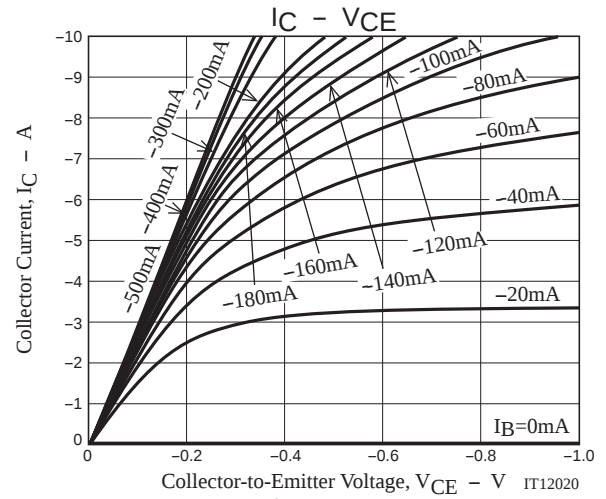
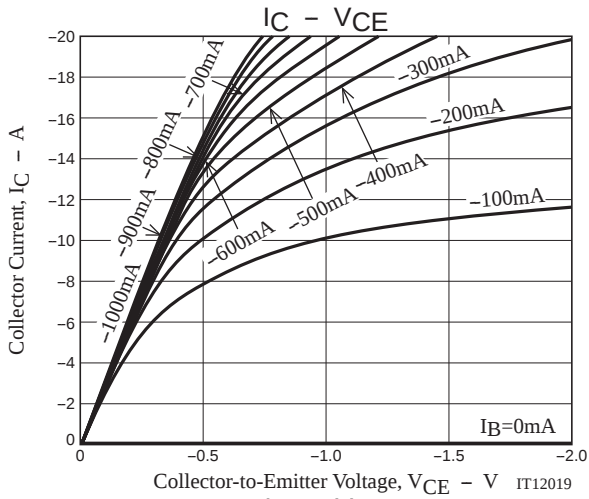
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = -40\text{V}, I_E = 0\text{A}$			-10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = -4\text{V}, I_C = 0\text{A}$			-10	μA
DC Current Gain	h_{FE}	$V_{CE} = -2\text{V}, I_C = -1\text{A}$	150		450	
Gain-Bandwidth Product	f_T	$V_{CE} = -10\text{V}, I_C = -1\text{A}$		140		MHz
Output Capacitance	C_{ob}	$V_{CB} = -10\text{V}, f = 1\text{MHz}$		215		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -7\text{A}, I_B = -350\text{mA}$		-200	-500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -7\text{A}, I_B = -350\text{mA}$			-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0\text{A}$	-50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, R_{BE} = \infty$	-50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}, I_C = 0\text{A}$	-6			V
Turn-On Time	t_{on}	See specified Test Circuit		60		ns
Storage Time	t_{stg}			270		ns
Fall Time	t_f			20		ns

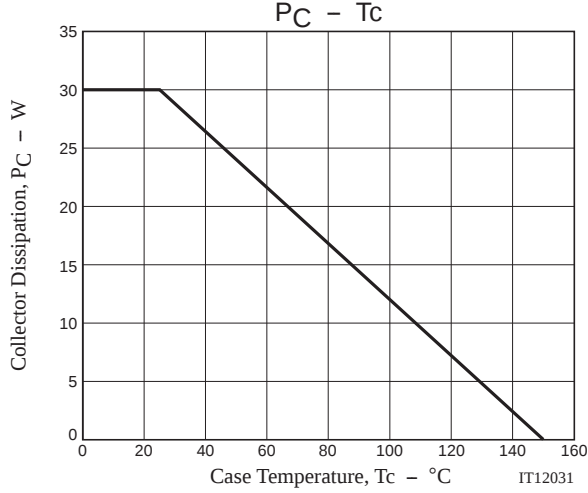
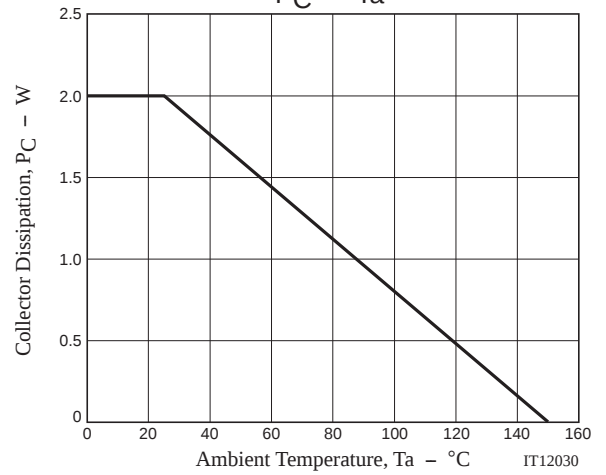
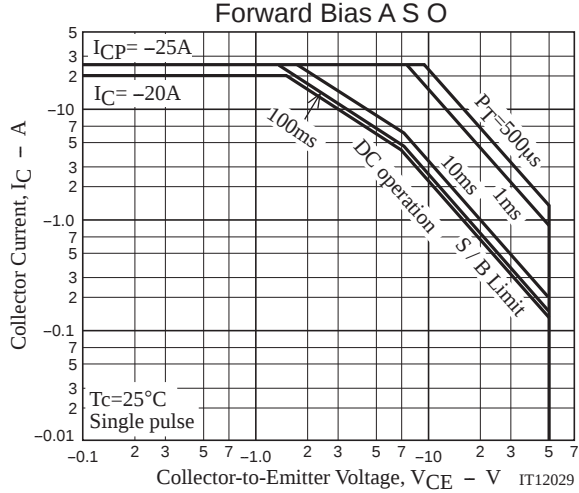
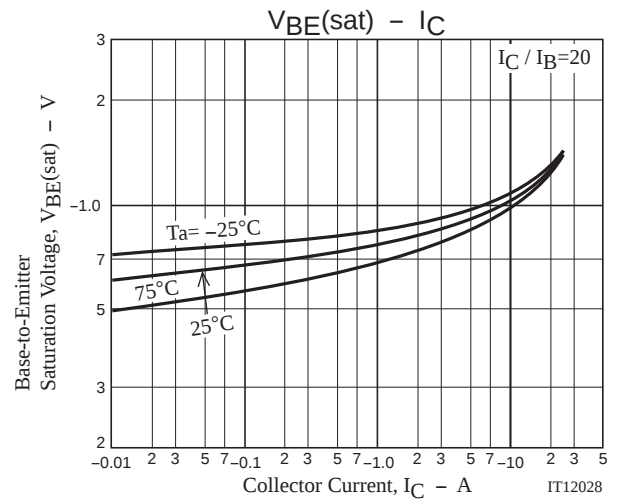
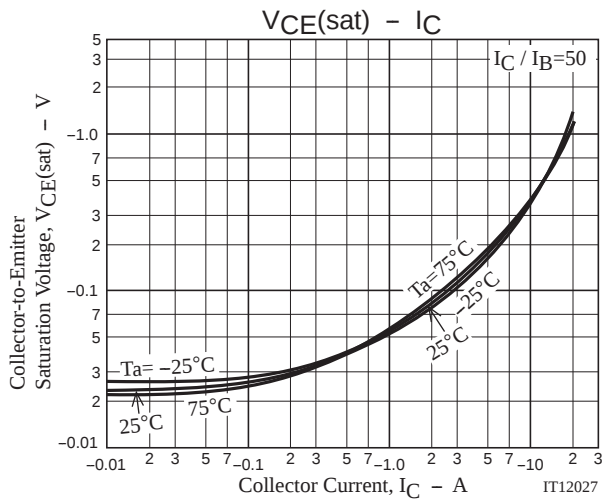
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
2SA2210-1E	TO-220F-3SG	50pcs./magazine	Pb Free





Magazine Specification

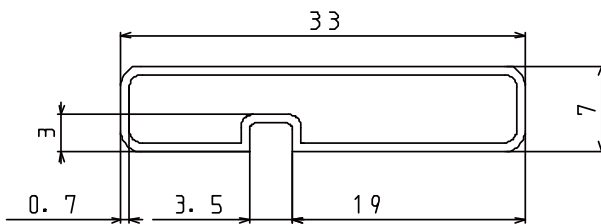
2SA2210-1E

1. Packing Format

Package Name	Magazine Name	Maximum Number of devices contained (pcs)			Packing format	
		Magazine	Inner box	Outer box	Inner BOX	Outer BOX
TO-220F-3SG	TO-220F	50	1,000	4,000	SPD-0V0001 20 magazines contained Dimensions:mm {external} 568×150×55	SPT-081029 4 inner boxes contained Dimensions:mm {external} 590×225×178

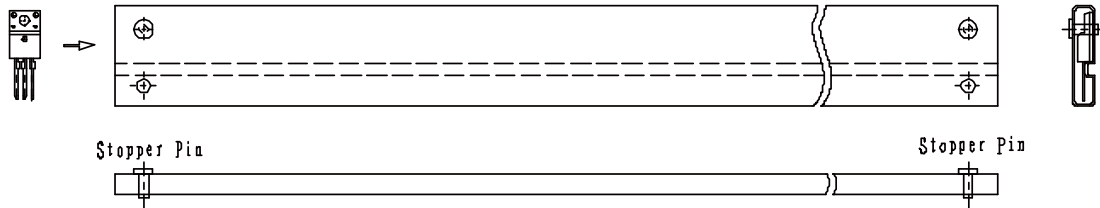
2. Magazine dimensions

(unit:mm)



Tolerance=±0.3mm
 Thickness=0.7±0.2mm
 Length =532.5±2mm
 Material =PVC (Antistatic treatment)

3. Storage method to magazine



4. Inner box label (unit:mm)

Type No.	→	① TYPE 0000000000
LOT No.	→	② LOT 00
Quantity	→	③ QTY 0,000 (1) LEAD FREE #
Origin	→	④ SPECIAL *20722005310C* ASSEMBLY:***** (DIFFUSION:*****)

NOTE (1)

The LEAD FREE # description shows that the surface treatment of the terminal is lead free.

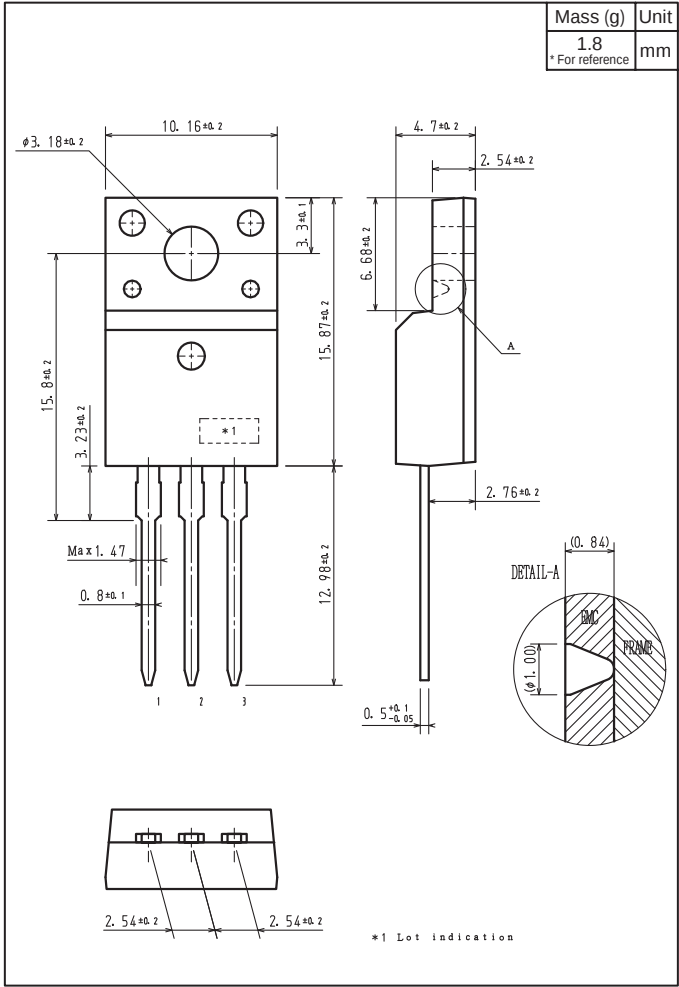
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

5. Outer box label (unit:mm)

It is a label at the time of factory shipments.
 The form of a label may change in physical
 distribution process.

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TYPE CODE	① TYPE 0000000000
QTY	② QTY 0,000 PCS (1) LEAD FREE #
LOT	③ LOT 00
PACKAGE	④ PACKAGE 00000000
SPECIAL	*20722005310C* ASSEMBLY:***** (DIFFUSION:*****)

Outline Drawing
2SA2210-1E



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