



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# SANYO Semiconductors

## DATA SHEET

# 2SA2222

PNP Epitaxial Planar Silicon Transistor

## High-Current Switching Applications

### Applications

- Relay drivers, lamp drivers, motor drivers.

### Features

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

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CBO</sub>		-50	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		-50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		-6	V
Collector Current	I <sub>C</sub>		-10	A
Collector Current (Pulse)	I <sub>CP</sub>		-13	A
Base Current	I <sub>B</sub>		-2	A
Collector Dissipation	P <sub>C</sub>	T <sub>C</sub> =25°C	2	W
			25	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

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SANYO Semiconductor Co., Ltd.

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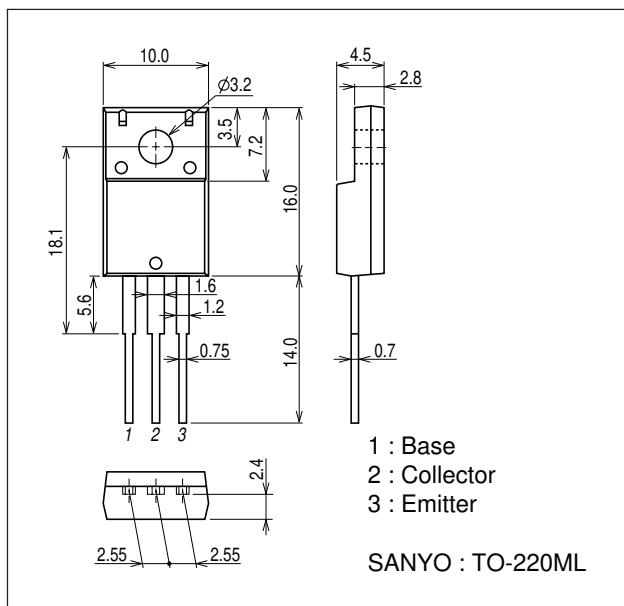
Electrical Characteristics at  $T_a=25^\circ\text{C}$ 

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

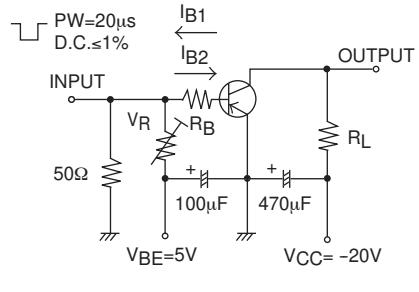
## Package Dimensions

unit : mm (typ)

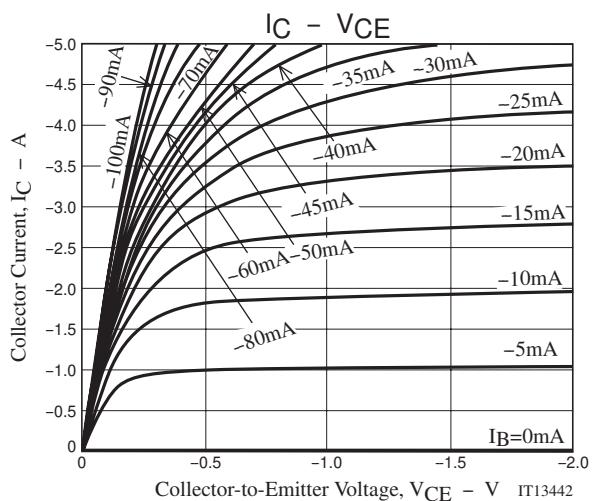
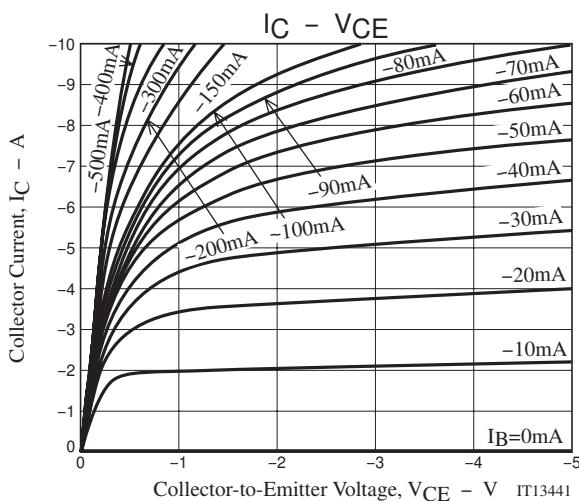
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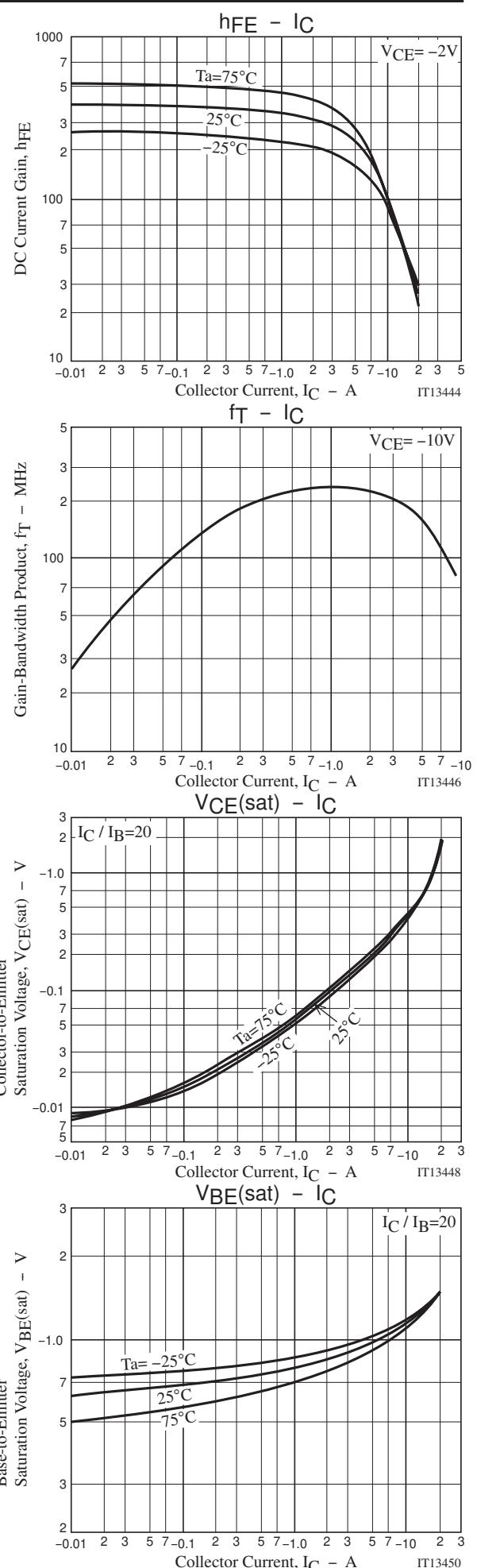
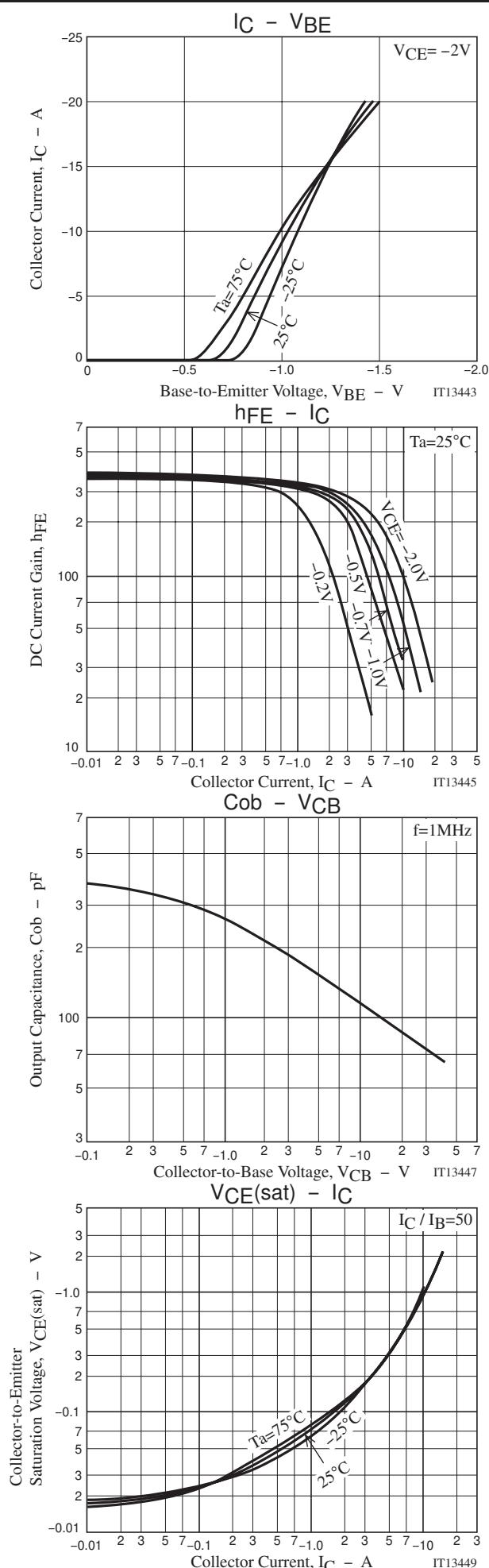


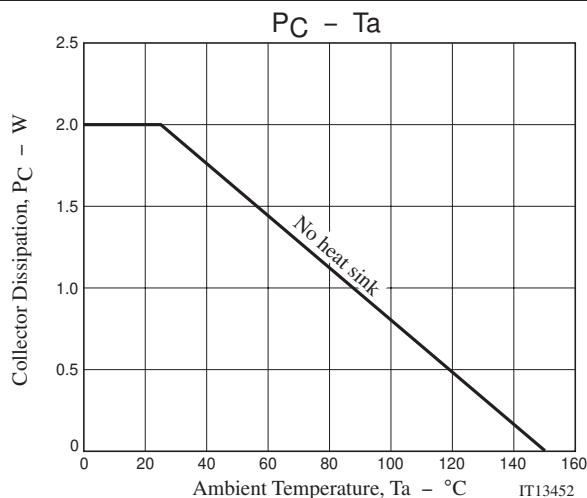
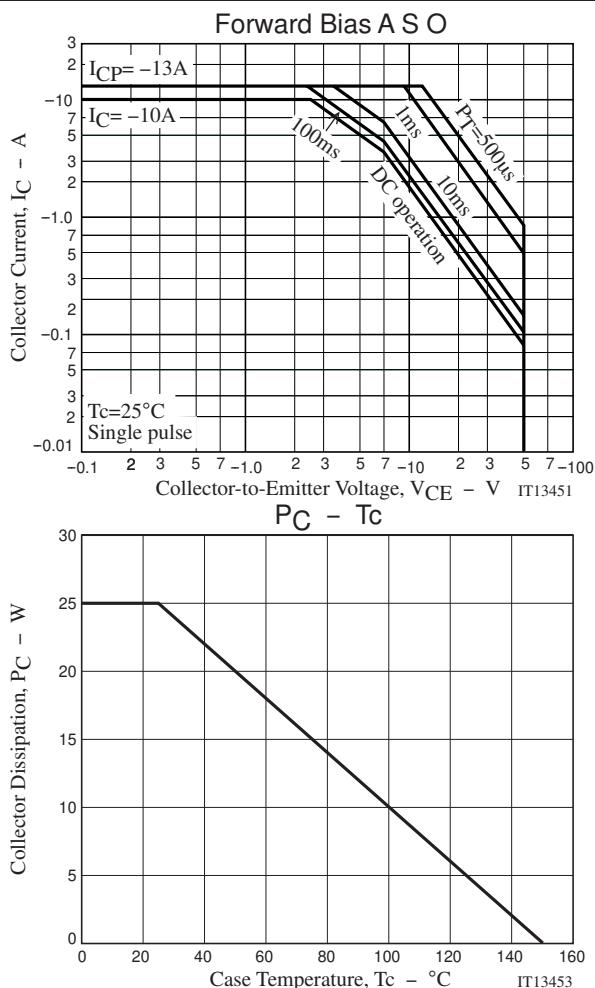
## Switching Time Test Circuit



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







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