

2SC5994

Bipolar Transistor 50V, 2A, Low VCE(sat), NPN Single



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Features

- Adoption of MBIT Process
- Low Collector to Emitter Saturation Voltage
- Large Current Capacity
- High Speed Switching

Typical Applications

- Voltage Regulators
- Relay Drivers
- Lamp Drivers
- Electrical Equipment

SPECIFICATIONS

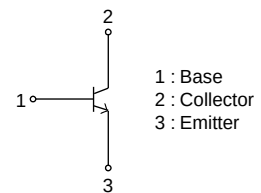
ABSOLUTE MAXIMUM RATING at Ta = 25°C (Note 1, 2)

Parameter		Symbol	Value	Unit
Collector to Base Voltage		V _{CBO}	100	V
Collector to Emitter Voltage		V _{CES}	100	V
		V _{CEO}	50	V
Emitter to Base Voltage		V _{EBO}	6	V
Collector Current		I _C	2	A
Collector Current (Pulse)		I _{CP}	4	A
Base Current		I _B	400	mA
Collector Dissipation	(Note 2)	P _C	1.3	W
	T _C =25°C		3.5	W
Junction Temperature		T _J	150	°C
Storage Temperature		T _{stg}	−55 to +150	°C

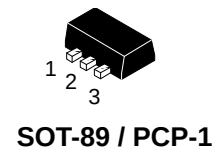
Note 1 : Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Note 2 : Surface mounted on ceramic substrate(450mm² × 0.8mm)

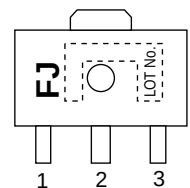
ELECTRICAL CONNECTION



MARKING



SOT-89 / PCP-1



ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.

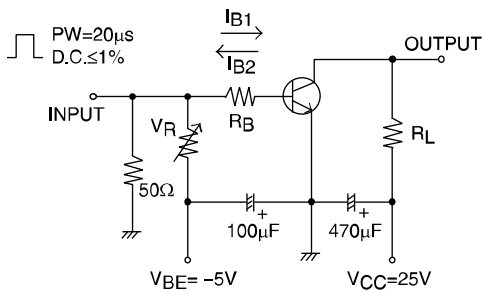
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ELECTRICAL CHARACTERISTICS at Ta = 25°C (Note 3)

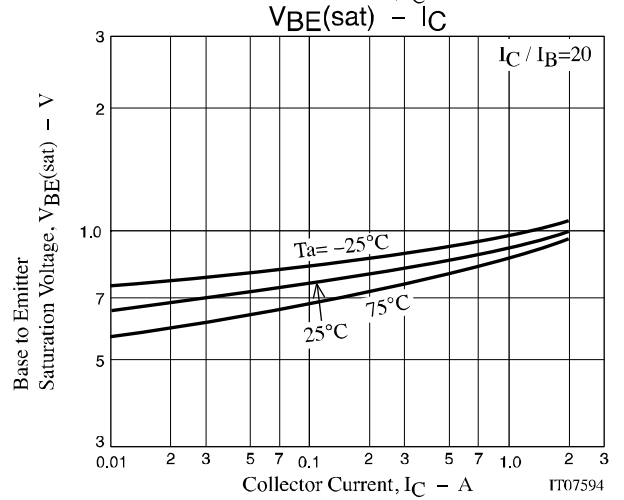
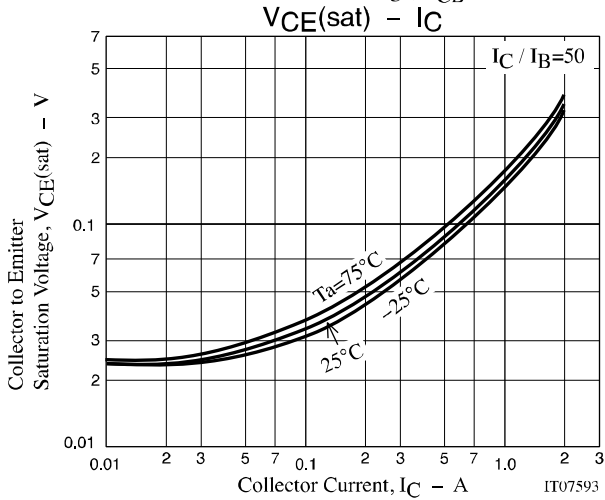
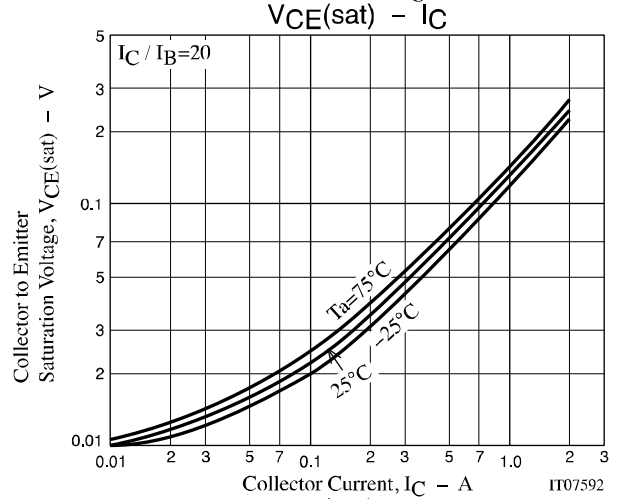
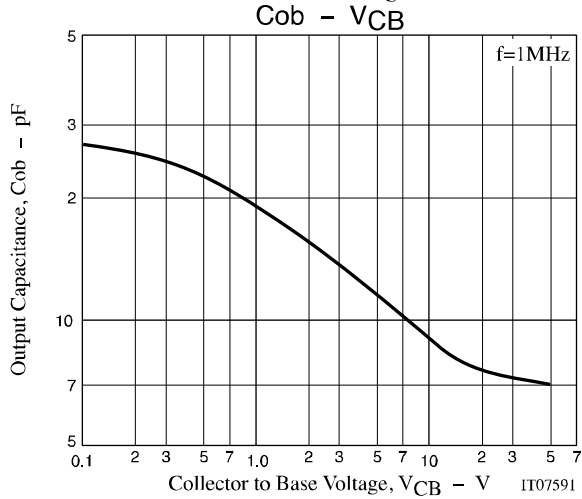
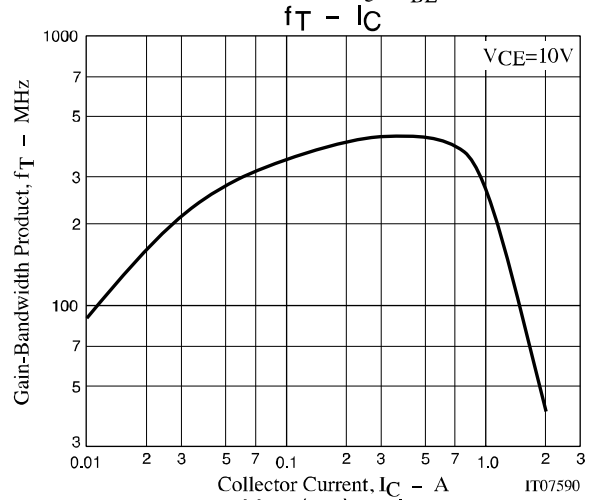
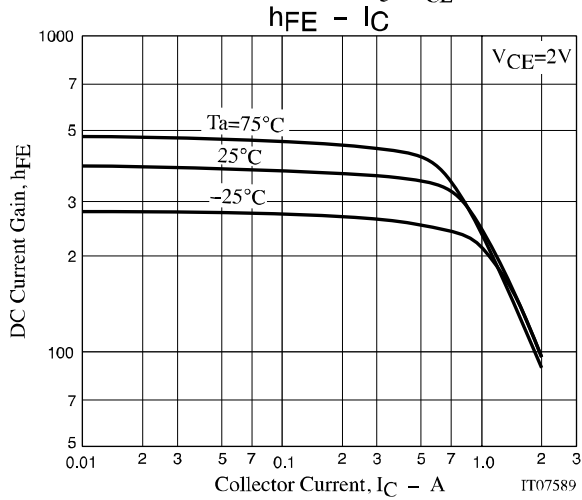
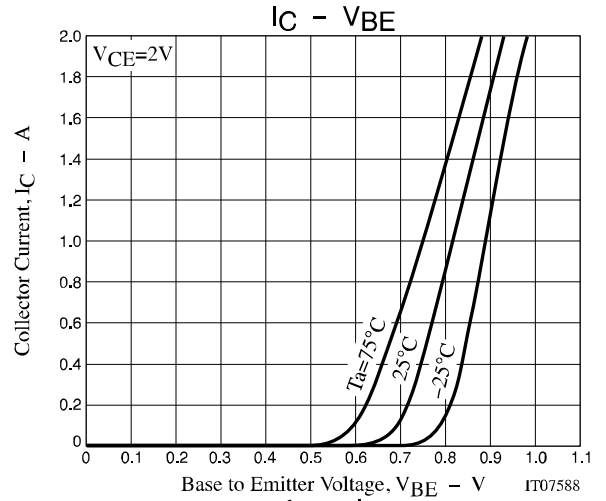
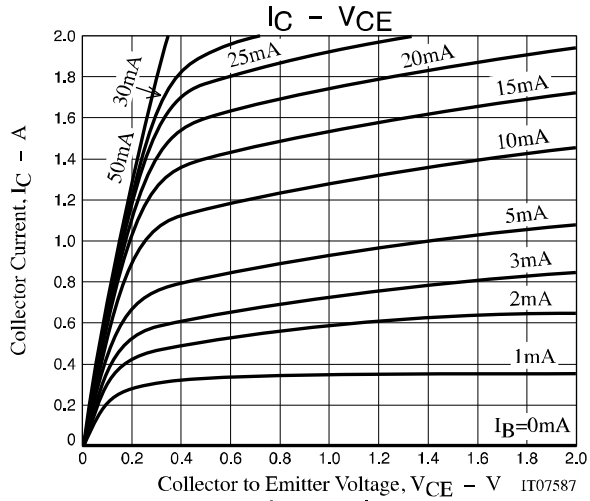
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=50V, I_E=0A$			1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4V, I_C=0A$			1	μA
DC Current Gain	h_{FE1}	$V_{CE}=2V, I_C=100mA$	200		560	
	h_{FE2}	$V_{CE}=2V, I_C=1.5A$	40			
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=300mA$		420		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		9		pF
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1A, I_B=50mA$		135	300	mV
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1A, I_B=50mA$		0.9	1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0A$	100			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu A, R_{BE}=0\Omega$	100			V
	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0A$	6			V
Turn-On Time	t_{on}	See specified Test Circuit		30		ns
Storage Time	t_{stg}			330		ns
Fall Time	t_f			40		ns

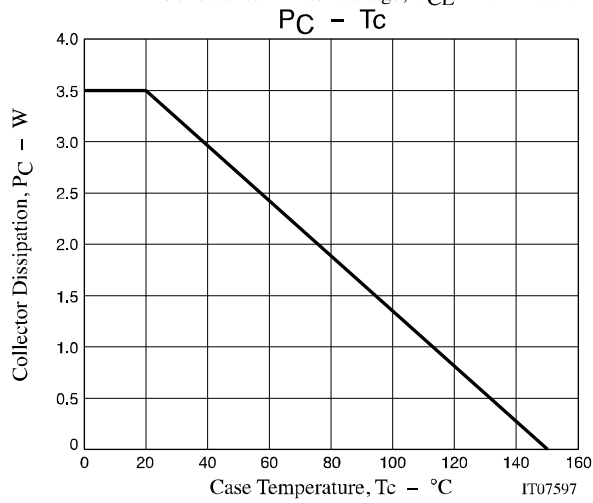
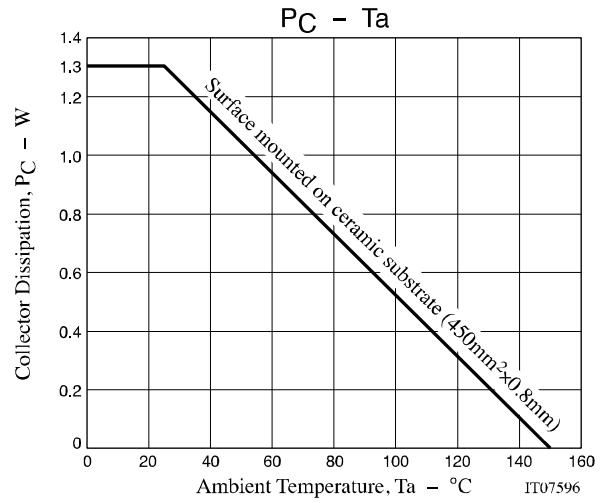
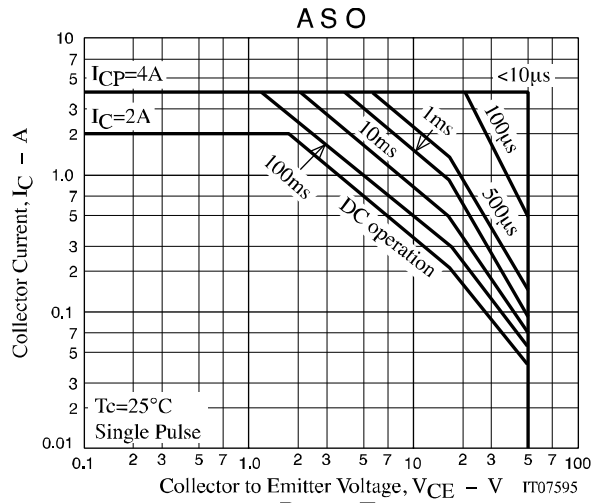
Note 3 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted.
Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Switching Time Test Circuit



$$I_C = 10I_{B1} = -10I_{B2} = 700mA$$





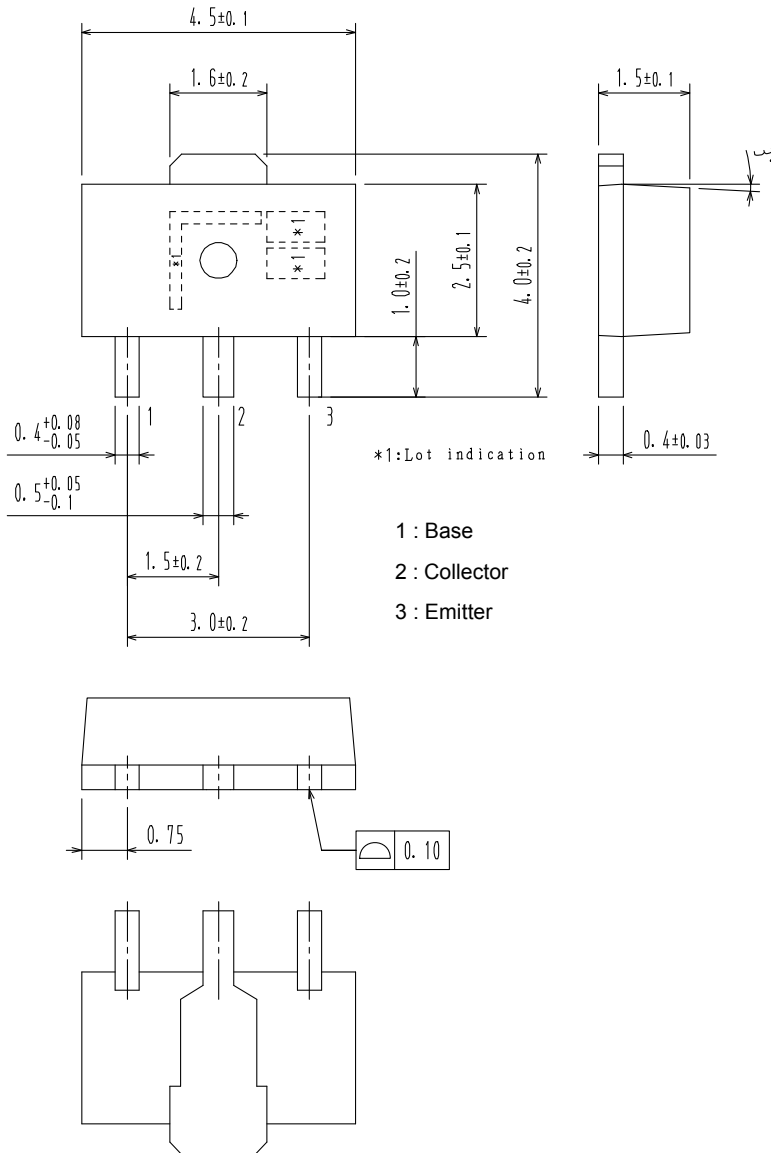
PACKAGE DIMENSIONS

unit : mm

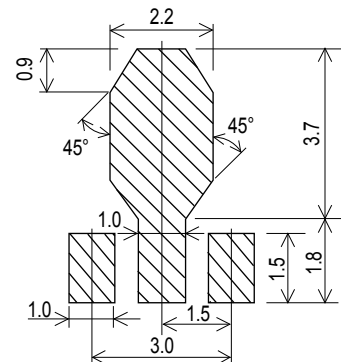
SOT-89 / PCP-1

CASE 419AU

ISSUE O



Recommended Soldering Footprint



ORDERING INFORMATION

Device	Marking	Package	Shipping (Qty / Packing)
2SC5994-TD-E	FJ	SOT-89 / PCP-1 (Pb-Free)	1,000 / Tape & Reel

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D. http://www.onsemi.com/pub_link/Collateral/BRD8011-D.PDF

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