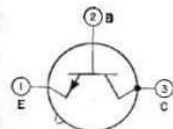


POWER TRANSISTOR



Silicon n-p-n type used in a wide variety of small-signal and medium-power switching applications in industrial and military equipment. It features high collector-to-emitter sustaining voltage, low leakage characteristics, high switching speeds, and a high dc forward current-transfer ratio. This type can be replaced by the 2N2405 in most applications. JEDEC No. TO-5 package; outline 6, Outlines Section.

2N1893

CHARACTERISTICS

Collector-to-Base Breakdown Voltage (with collector ma = 0.1 and emitter current = 0)	120 min	volts
Emitter-to-Base Breakdown Voltage (with emitter ma = 0.1 and collector current = 0)	7 min	volts
Collector-to-Emitter Saturation Voltage:		
With base ma = 15 and collector ma = 150	5 max	volts
With base ma = 5 and collector ma = 50	1.2 max	volts
Base-to-Emitter Saturation Voltage:		
With base ma = 15 and collector ma = 150	1.3 max	volts
With base ma = 5 and collector ma = 50	0.9 max	volt
Collector-to-Emitter Sustaining Voltage:		
With base current = 0 and pulsed collector ma = 30*	80 min	volts
With external base-to-emitter resistance = 10 ohms and pulsed collector ma = 100*	100 min	volts
Collector-Cutoff Current:		
With case temperature = 25°C, collector-to-base volts = 90, and emitter current = 0	0.01 max	μa
With case temperature = 150°C, collector-to-base volts = 90, and emitter current = 0	15 max	μa
Emitter-Cutoff Current (with emitter-to-base volts = 5 and collector current = 0)	0.01 max	μa
Thermal Resistance:		
Junction-to-case	58.3 max	°C/watt
Junction-to-ambient	219 max	°C/watt

* Pulse duration = 300 μsec, duty factor = 0.018

MAXIMUM RATINGS

Collector-to-Base Voltage (with emitter open)	120 max	volts
Collector-to-Emitter Voltage (with external base-to-emitter resistance = 10 ohms or less)	100 max	volts
Collector-to-Base Voltage (with base open)	80 max	volts
Emitter-to-Base Voltage (with collector open)	7 max	volts
Collector Current	0.5 max	ampere
Transistor Dissipation:		
At case temperatures up to 25°C	3 max	watts
At ambient temperatures up to 25°C	0.8 max	watt
At case or ambient temperatures above 25°C	See curve	page 80
Temperature Range:		
Operating (Junction)	-65 to 200	°C
Storage	-65 to 300	°C
Lead Temperature (for 10 seconds maximum)	255 max	°C

In Common-Base Circuit

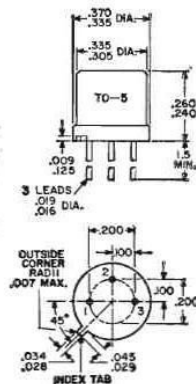
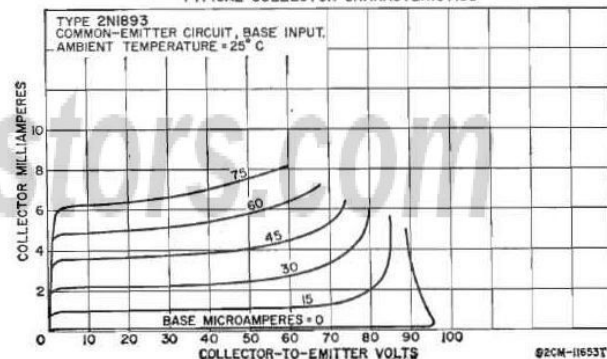
Input Resistance at 1 kilocycle:		
With collector-to-base volts = 5 and collector ma = 1	20 to 30	ohms
With collector-to-base volts = 10 and collector ma = 5	4 to 8	ohms
Emitter-to-Base Capacitance (with emitter-to-base volts = 0.5 and collector current = 0)	85 max	pf
Collector-to-Base Capacitance (with collector-to-base volts = 10 and emitter current = 0)	15 max	pf
Output Conductance at 1 kilocycle:		
With collector-to-base volts = 5 and collector ma = 1	0.5 max	μmho
With collector-to-base volts = 10 and collector ma = 5	0.5 max	μmho
Small-Signal Open-Circuit Reverse Voltage-Transfer Ratio at 1 kilocycle:		
With collector-to-base volts = 5 and collector ma = 1	1.25×10^{-4}	
With collector-to-base volts = 10 and collector ma = 5	1.5×10^{-4}	

In Common-Emitter Circuit

DC Forward Current Transfer Ratio:		
With collector-to-emitter volts = 10 and pulsed collector ma = 150*	40 to 120	
With collector-to-emitter volts = 10 and collector ma = 10	35 min	
With collector-to-emitter volts = 10 and collector ma = 0.1	20 min	
With collector-to-emitter volts = 10, collector ma = 10, and case temperature = -55°C	20 min	
Small-Signal Forward Current-Transfer Ratio:		
With collector-to-emitter volts = 5, and collector ma = 1, and frequency = 1 kilocycle	30 to 100	
With collector-to-emitter volts = 10, and collector ma = 5, and frequency = 1 kilocycle	45 min	
With collector-to-emitter volts = 10, and collector ma = 50, and frequency = 20 Mc	2.5 min	

* Pulse duration = 300 μsec, duty factor = 0.018

TYPICAL COLLECTOR CHARACTERISTICS



TYPICAL TRANSFER CHARACTERISTICS

