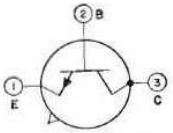
TRANSISTOR

2N1711



Silicon n-p-n type used in a wide variety of small-signal and medium-power applications in industrial and military equipment. It can be used in rf service as an amplifier, mixer, oscillator, and converter; in af service for small- and large-signal driver and power applications. It features low saturation voltage, high sustaining voltage, high dissipation, high pulse beta, low output capacitance, and exceptionally low noise and leakage characteristics. JEDEC No. TO-5 package; outline 6, Outlines Section. For curves of transfer characteristics, refer to type 2N2102.

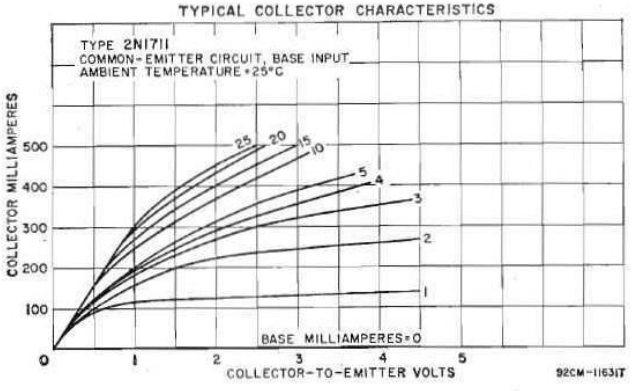
MAXIMUM RATINGS

Collector-to-Base Voltage (with emitter open)	75 max	volts
Collector-to-Emitter Voltage (with external base-to-emitter resistance = 10 ohms or less)	50 max	volts
Emitter-to-Base Voltage (with collector open)	7 max	volts
Collector Current	1 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

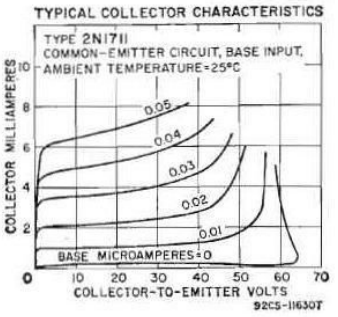
CHARACTERISTICS

Collector-to-Base Breakdown Voltage (with collector ma = 0.1 and emitter current = 0)	75 min	volts
Emitter-to-Base Breakdown Voltage (with emitter ma = 0.1 and collector current = 0)	7 min	volts
Collector-to-Emitter Reach-Through Voltage (with emitter-to-base volts = 1.5 and collector ma = 0.1)	75 min	volts
Collector-to-Emitter Sustaining Voltage (with external base-to-emitter resistance = 10 ohms or less and pulse collector ma = 100)	50 min	volts
Base-to-Emitter Saturation Voltage (with collector ma = 150 and base ma = 15)	1.3 max	volts
Collector-to-Emitter Saturation Voltage (with collector ma = 150 and base ma = 15)	1.5 max	volts
Collector-Cutoff Current (with collector-to-base volts = 60 and emitter current = 0)	0.01 max	μa

TYPICAL COLLECTOR CHARACTERISTICS



TYPICAL COLLECTOR CHARACTERISTICS



Emitter-Cutoff Current (with emitter-to-base volts = 5 and collector current = 0)	0.005 max	μa
Thermal Resistance:		
Junction-to-case	58.3 max	°C/watt
Junction-to-ambient	219 max	°C/watt

In Common-Base Circuit

Input Resistance at 1 kilocycle:		
With collector-to-base volts = 5 and collector ma = 1	24 to 34	ohms
With collector-to-base volts = 10 and collector ma = 5	4 to 8	ohms
Input Capacitance (with emitter-to-base volts = 0.5 and collector current = 0)	80 max	pf
Output Capacitance (with collector-to-base volts = 10 and emitter current = 0)	25 max	pf
Output Capacitance at 1 kilocycle:		
With collector-to-base volts = 5 and collector ma = 1	0.1 to 0.5	μmho
With collector-to-base volts = 10 and collector ma = 5	0.1 to 1	μmho
Small-Signal Open-Circuit Reverse Voltage-Transfer Ratio at 1 kilocycle:		
With collector-to-base volts = 5 and collector ma = 1	0.0005 max	
With collector-to-base volts = 10 and collector ma = 5	0.0005 max	

In Common-Emitter Circuit

DC-Pulse Forward Current-Transfer Ratio:*		
With collector-to-emitter volts = 10 and collector ma = 10	75 min	
With collector-to-emitter volts = 10 and collector ma = 150	100 to 300	
With collector-to-emitter volts = 10 and collector ma = 500	40 min	
DC Forward Current-Transfer Ratio:		
With collector-to-emitter volts = 10 and collector ma = 0.01	20 min	
With collector-to-emitter volts = 10 and collector ma = 0.1	35 min	
Small-Signal Forward Current-Transfer Ratio:		
With collector-to-emitter volts = 5, collector ma = 1, and frequency = 1 kilocycle	50 to 200	
With collector-to-emitter volts = 10, collector ma = 5, and frequency = 1 kilocycle	70 to 300	
With collector-to-emitter volts = 10, collector ma = 50, and frequency = 20 megacycles	3.5 min	
Noise Figure (with collector-to-emitter volts = 10, collector ma = 0.3, generator resistance = 510 ohms, circuit bandwidth = 1 cycle, and signal frequency = 1 kilocycle)	8 max	db

* Pulse duration = 300 μsec; duty factor = 0.018.