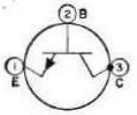
POWER TRANSISTOR



2N1067

Silicon n-p-n type used in a wide variety of intermediate-power switching and amplifier applications in industrial and military equipment. It is used in power-switching, dc-to-dc converter, inverter, chopper, solenoid and relay control circuits; in oscillator, regulator, and pulse-amplifier circuits; and as a class A or class B push-pull audio and servo amplifier. It features low saturation resistance, high current and power dissipation, high beta at high current, and excellent high-temperature performance. JEDEC No. TO-8 package; outline 8, Outlines Section.

MAXIMUM RATINGS

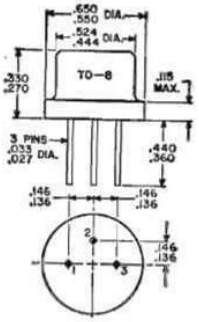
Collector-to-Base Voltage (with emitter open)	60 max	volts
Collector-to-Emitter Voltage:		
With base short-circuited to emitter	60 max	volts
With base open	45 max	volts
Emitter-to-Base Voltage (with collector open)	12 max	volts
Collector Current	0.5 max	ampere
Emitter Current	−0.5 max	ampere
Base Current	0.2 max	ampere
Transistor Dissipation:		
At case temperatures up to 25°C	5 max	watts
At case temperatures above 25°C	See curve page 80	
Temperature Range:		
Operating (junction) and storage	−65 to 175	°C

CHARACTERISTICS

Emitter-to-Base Voltage (with collector-to-emitter volts = 4 and collector ma = 200)	−1.2	volts
Collector-Cutoff Current (with collector-to-base volts = 60 and emitter current = 0)	15	μa
Emitter-Cutoff Current (with emitter-to-base volts = 12 and collector current = 0)	1	μa
Collector Current:		
With collector-to-emitter volts = 60 and base short-circuited to emitter	100	μa
With collector-to-emitter volts = 30 and base open	100	μa
Thermal Resistance:		
Junction-to-case	15	°C/watt
Junction-to-ambient	100 max	°C/watt
Thermal Time Constant	8	msec

In Common-Base Circuit

Small-Signal Forward-Current-Transfer-Ratio Cutoff Frequency (with collector-to-base volts = 28 and collector ma = 5)	1.5	Mc

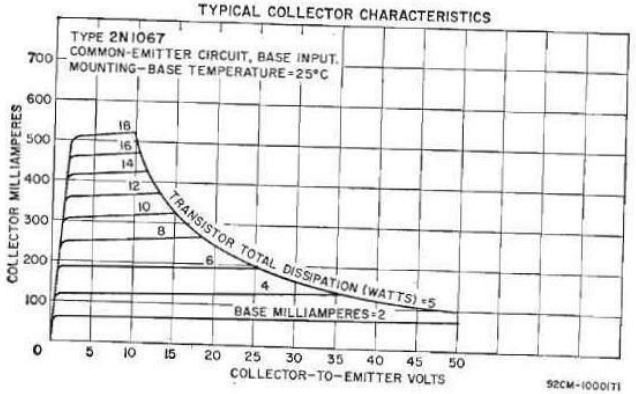


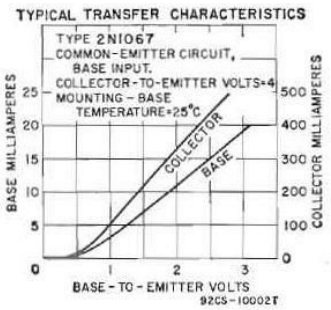
In Common-Emitter Circuit

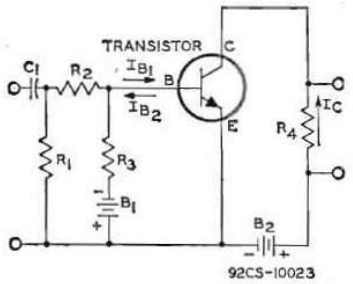
DC Forward Current-Transfer Ratio (with collector-to-emitter volts = 4 and collector ma = 200)	35	
DC Collector-to-Emitter Saturation Resistance (with collector ma = 200 and base ma = 20)	3	ohms

TYPICAL OPERATION IN POWER-SWITCHING CIRCUIT BELOW

DC Collector Supply Voltage (B_2)	12	volts
DC Base Supply Voltage (B_1)	−12	volts
Generator Resistance	50	ohms
On DC Collector Current (I_C)	200	ma
Turn-On DC Base Current (I_{B1})	20	ma
Turn-Off DC Base Current (I_{B2})	−20	ma
Switching Time:		
Delay time (t_d)	0.2	μsec
Rise time (t_r)	1.2	μsec
Storage time (t_s)	0.7	μsec
Fall time (t_f)	0.9	μsec







B_1, B_2 = 12 volts
C_1 = 5 μf, electrolytic, 25 volts
R_1 = 51 ohms, 1 watt
R_2 = 280 ohms, 0.5 watt
R_3 = 700 ohms, 1 watt
R_4 = 59 ohms, 2 watts