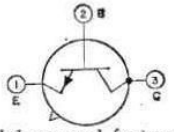
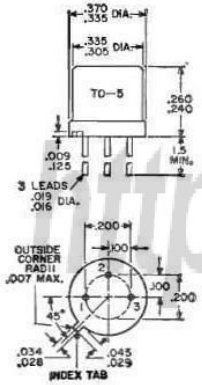
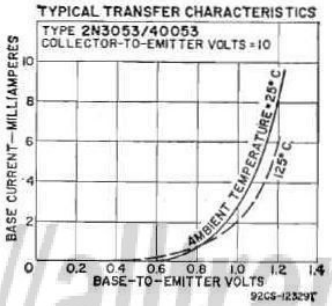
POWER TRANSISTOR

2N3053/ 40053



Silicon n-p-n type used in a wide variety of medium-power applications in industrial and commercial equipment. This type is intended primarily for frequencies up to 20 megacycles in small-signal power circuits. It is designed to assure freedom from second breakdown and features low leakage current and wide beta range. JEDEC No. TO-5 package; outline 6, Outlines Section.





MAXIMUM RATINGS

Collector-to-Base Voltage	60 max	volts
Collector-to-Emitter Voltage:		
With base open	40 max	volts
With external base-to-emitter resistance = 10 ohms	50 max	volts
With base-to-emitter volts = 1.5 volts	60 max	volts
Emitter-to-Base Voltage	5 max	volts
Collector Current	0.7 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 and Storage	—65 to 200	°C
Lead Temperature (for 10 seconds maximum)	235 max	°C

CHARACTERISTICS

Collector-to-Base Breakdown Voltage (with collector ma = 0.1)	60 min	volts
Collector-to-Emitter Sustaining Voltage:		
With external base-to-emitter resistance = 0 and collector ma = 100*	40 min	volts
With external base-to-emitter resistance = 10 ohms and collector ma = 100	50 min	volts
Collector-to-Emitter Saturation Voltage (with collector ma = 150 and base ma = 15)	1.4 max	volts
Base-to-Emitter Saturation Voltage (with collector ma = 150 and base ma = 15)	1.7 max	volts
Collector-Cutoff Current (with collector-to-base volts = 30 and emitter current = 0)	0.25 max	μa
Emitter-Cutoff Current (with emitter-to-base volts = 4 and collector current = 0)	0.25 max	μa
Thermal Resistance (junction-to-case)	35 max	°C/watt
In Common-Base Circuit		
Emitter-to-Base Capacitance (with emitter-to-base volts = 0.5 and collector current = 0)	80 max	pf
Collector-to-Base Capacitance (with collector-to-base volts = 10 and emitter current = 0)	15 max	pf
In Common-Emitter Circuit		
DC Forward Current-Transfer Ratio (with collector-to-emitter volts = 10 and pulsed collector ma = 150*)	50 to 250	
Small-Signal Forward Current-Transfer Ratio (with collector-to-emitter volts = 10, collector ma = 50, and frequency = 20 Mc)	5 min	

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