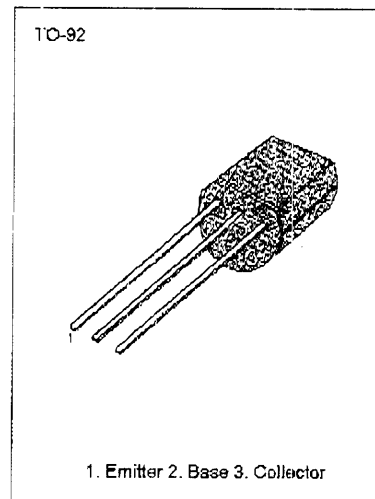


GENERAL PURPOSE TRANSISTOR

Collector-Emitter Voltage: $V_{CE0} = 40V$
Collector Dissipation: $P_C(max) = 625mW$

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	60	V
Collector-Emitter Voltage	V_{CE0}	40	V
Emitter-Base Voltage	V_{EB0}	6	V
Collector Current	I_C	200	mA
Collector Dissipation	P_C	625	mW
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{STG}	-55 ~ 150	$^\circ C$



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$)

Characteristic	Symbol	Test Conditions:	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = 10\mu A, I_E = 0$	60			V
*Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1mA, I_B = 0$	40			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = 10\mu A, I_C = 0$	6			V
Collector Cut-off Current	I_{CEX}	$V_{CE} = 30V, V_{EB} = 3V$			50	nA
Base Cut-off Current	I_{BL}	$V_{CE} = 30V, V_{EB} = 3V$			50	nA
*DC Current Gain	h_{FE}					
	:2N3903	$V_{CE} = 1V, I_C = 0.1mA$	20			
	2N3904		40			
	2N3903	$V_{CE} = 1V, I_C = 1mA$	35			
	2N3904		70			
	2N3903	$V_{CE} = 1V, I_C = 10mA$	50		150	
	2N3904		100		300	
	2N3903	$V_{CE} = 1V, I_C = 50mA$	30			
	2N3904		60			
	2N3903	$V_{CE} = 1V, I_C = 100mA$	15			
	2N3904		30			
*Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 1mA$			0.2	V
		$I_C = 50mA, I_B = 5mA$			0.3	V
*Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10mA, I_B = 1mA$	0.65		0.85	V
		$I_C = 50mA, I_B = 5mA$			0.95	V
Output Capacitance	C_{CB}	$V_{CB} = 5V, I_E = 0$ $f = 1MHz$			4	pF
Current Gain-Bandwidth Product		$V_{CE} = 20V, I_C = 10mA$ $f = 100MHz$	250			MHz
	:2N3903		300			MHz
Turn On Time	t_{ON}	$V_{CC} = 3V, V_{BE} = 0.5V$ $I_C = 10mA, I_B1 = 1mA$			70	ns
Turn Off Time	t_{OFF}	$V_{CC} = 3V, I_C = 10mA$ $I_B1 = I_B2 = 1mA$			225	ns
	:2N3903				250	ns
	2N3904					ns

*Pulse Test: Pulse Width $\leq 30\mu s$, Duty Cycle $\leq 2\%$

