2N4453

For Specifications, See 2N869A Data.

2N4890

CASE 79-02, STYLE 1
TO-39 (TO-205AD)

GENERAL PURPOSE TRANSISTOR

PNP SILICON

4

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	40	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current — Continuous	I_C	1.0	Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	1.0 5.7	Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	5.0 28.6	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200	°C

Refer to 2N4033 for graphs.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage(1) (I_C = 100 μAdc, I_B = 0)	$V_{(BR)CEO}$	40	—	—	Vdc
Collector-Emitter Breakdown Voltage (I_C = 10 mAdc, R_{BE} = 10 ohms)	$V_{(BR)CER}$	50	—	—	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	60	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	$V_{(BR)EBO}$	5.0	—	—	Vdc
Collector Cutoff Current (V_{CE} = 60 Vdc, $V_{BE(off)}$ = 1.5 Vdc)	I_{CEX}	—	—	0.25	μAdc
Base Cutoff Current (V_{CE} = 60 Vdc, $V_{BE(off)}$ = 1.5 Vdc)	I_{BL}	—	—	0.25	μAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 150 mAdc, V_{CE} = 2.5 Vdc) (I_C = 150 mAdc, V_{CE} = 10 Vdc) *(I_C = 500 mA, V_{CE} = 5 Vdc(1)	h_{FE}	 25 50 15	 130 140 —	 — 250 —	—
Collector-Emitter Saturation Voltage (I_C = 150 mAdc, I_B = 15 mAdc)	$V_{CE(sat)}$	—	0.12	1.4	Vdc
Base-Emitter Saturation Voltage (I_C = 150 mAdc, I_B = 15 mAdc)	$V_{BE(sat)}$	—	0.82	1.7	Vdc
Base-Emitter On Voltage (I_C = 150 mAdc, V_{CE} = 2.5 Vdc)	$V_{BE(on)}$	—	0.74	1.7	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)	f_T	100	280	—	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 140 kHz)	C_{obo}	—	9.0	15	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 140 kHz)	C_{ibo}	—	60	80	pF
SWITCHING CHARACTERISTICS					
Delay Time	(V_{CC} = 30 Vdc, $V_{BE(off)}$ = 0.8 Vdc, I_C = 150 mAdc, I_{B1} = 15 mAdc) t_d	—	15	50	ns
Rise Time	t_r	20	20	50	ns
Storage Time	(V_{CC} = 30 Vdc, I_C = 150 mAdc, I_{B1} = I_{B2} = 15 mAdc) t_s	—	110	200	ns
Fall Time	t_f	—	20	70	ns

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

*Indicates Data in Addition to JEDEC Requirements.