

MAXIMUM RATINGS

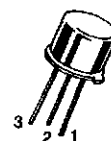
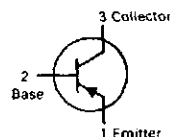
Rating	Symbol	2N4032	2N4033	Unit
Collector-Emitter Voltage	V_{CE}	-60	-80	Vdc
Collector-Base Voltage	V_{CB}	-60	-80	Vdc
Emitter-Base Voltage	V_{EB}	-5.0	-5.0	Vdc
Collector Current — Continuous	I_C	-1.0		Adc
Total Device Dissipation (at $T_A = 25^\circ\text{C}$ Derate above 25°C)	P_D	0.8 4.56		W mW/°C
Total Device Dissipation (at $T_C = 25^\circ\text{C}$ Derate above 25°C)	P_D	4.0 22.8		W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	140	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	25	°C/W

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**CASE 79-04, STYLE 1
TO-39 (TO-205AD)**



GENERAL PURPOSE TRANSISTORS

PNP SILICON

Refer to 2N4406 for graphs.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) ($I_C = -10\text{ mA}$)	$V_{(BR)CEO}$	-60 -80	—	V
Collector-Base Breakdown Voltage ($I_C = -10\text{ }\mu\text{A}$)	$V_{(BR)CBO}$	-60 -80	—	V
Emitter-Base Breakdown Voltage ($I_E = -10\text{ }\mu\text{A}$)	$V_{(BR)EBO}$	-5.0	—	V
Collector Cutoff Current ($V_{CB} = -50\text{ V}$) ($V_{CB} = -60\text{ V}$) ($V_{CB} = -50\text{ V}, T_A = 150^\circ\text{C}$) ($V_{CB} = -60\text{ V}, T_A = 150^\circ\text{C}$)	I_{CBO}	— — — —	-50 -50 -50 -50	nA μA
Emitter Cutoff Current ($V_{EB} = -5.0\text{ V}$)	I_{EBO}	—	-10	μA
ON CHARACTERISTICS				
DC Current Gain ($I_C = -100\text{ mA}, V_{CE} = -5.0\text{ V}, (w) -55^\circ\text{C})(1)$)	h_{FE}	40	—	—
($I_C = -100\text{ }\mu\text{A}, V_{CE} = -5.0\text{ V}$)		75	—	
($I_C = -100\text{ mA}, V_{CE} = -5.0\text{ V})(1)$)		100	300	
($I_C = -500\text{ mA}, V_{CE} = -5.0\text{ V})(1)$)		70	—	
($I_C = -1.0\text{ A}, V_{CE} = -5.0\text{ V})F(1)$)		40 25	— —	

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ELECTRICAL CHARACTERISTICS (continued) ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Saturation Voltage(1) $I_C = -150\text{ mA}, I_B = -15\text{ mA}$ $I_C = -500\text{ mA}, I_B = -50\text{ mA}$ $I_C = -1.0\text{ A}, I_B = -100\text{ mA}$	$V_{CE(sat)}$	— — —	— -0.15 -0.50 -1.0	V
Base-Emitter Saturation Voltage(1) $I_C = -150\text{ mA}, I_B = -15\text{ mA}$	$V_{BE(sat)}$	—	-0.9	V
Base-Emitter On Voltage $I_C = -1.0\text{ A}, V_{CE} = -1.0\text{ V}$ $I_C = -500\text{ mA}, V_{CE} = -0.5\text{ V}$ (1)	$V_{BE(on)}$	— —	-1.2 -1.1	V

SMALL-SIGNAL CHARACTERISTICS

Output Capacitance $(V_{CE} = -10\text{ V}, f = 1.0\text{ MHz})$	C_{obo}	—	20	pF
Input Capacitance $(V_{EB} = -0.5\text{ V}, f = 1.0\text{ MHz})$	C_{ibo}	—	110	pF
Small Signal Current Gain $(I_C = -50\text{ mA}, V_{CE} = -10\text{ V}, f = 100\text{ MHz})$	h_{fe}	1.5	5.0	—

SWITCHING CHARACTERISTICS

Storage Time $(I_C = -500\text{ mA}, I_{B1} = I_{B2} = -50\text{ mA})$	t_s	—	350	ns
Turn-On Time $(I_C = -500\text{ mA}, I_{B1} = -50\text{ mA})$	t_{on}	—	100	ns
Fall Time $(I_C = -500\text{ mA}, I_{B1} = I_{B2} = -50\text{ mA})$	t_f	—	50	ns

(1) Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$.