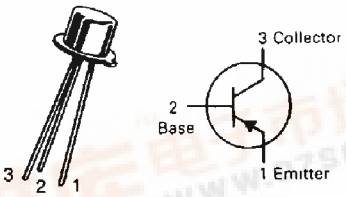
2N2894

CASE 22-03, STYLE 1
TO-18 (TO-206AA)



SWITCHING TRANSISTOR

PNP SILICON

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage(1)	V_{CEO}	−12	Vdc
Collector-Base Voltage	V_{CEO}	−12	Vdc
Emitter-Base Voltage	V_{EBO}	−4.0	Vdc
Collector Current — Continuous	I_C	−200	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	360 2.06	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1200 6.85	mW 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	$R_{\theta JA}$	486	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	146	°C/W

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C = −10 μAdc, V_{BE} = 0)	$V_{(BR)CES}$	−12	—	Vdc
Collector-Emitter Sustaining Voltage(2) (I_C = −10 mAdc, I_B = 0)	$V_{CEO(sus)}$	−12	—	Vdc
Collector-Base Breakdown Voltage (I_C = −10 μAdc, I_B = 0)	$V_{(BR)CBO}$	−12	—	Vdc
Emitter-Base Breakdown Voltage (I_E = −100 μAdc, I_C = 0)	$V_{(BR)EBO}$	−4.0	—	Vdc
Collector Cutoff Current (V_{CB} = −6.0 Vdc, I_E = 0, T_A = 125°C)	I_{CBO}	—	−10	μAdc
Collector Cutoff Current (V_{CE} = −6.0 Vdc, V_{BE} = 0)	I_{CES}	—	−80	nAdc
Base Current (V_{CE} = −6.0 Vdc, V_{BE} = 0)	I_B	—	−80	nAdc
ON CHARACTERISTICS				
DC Current Gain(2) (I_C = −10 mAdc, V_{CE} = −0.3 Vdc) (I_C = −30 mAdc, V_{CE} = −0.5 Vdc) (I_C = −30 mAdc, V_{CE} = −0.5 Vdc, T_A = −55°C) (I_C = −100 mAdc, V_{CE} = −1.0 Vdc)(2)	h_{FE}	 30 40 17 25	 — 150 — —	—
Collector-Emitter Saturation Voltage(2) (I_C = −10 mAdc, I_B = −1.0 mAdc) (I_C = −30 mAdc, I_B = −3.0 mAdc) (I_C = −100 mAdc, I_B = −10 mAdc)	$V_{CE(sat)}$	 — — —	 −0.15 −0.2 −0.5	Vdc
Base-Emitter Saturation Voltage(2) (I_C = −10 mAdc, I_B = −1.0 mAdc) (I_C = −30 mAdc, I_B = −3.0 mAdc (I_C = −100 mAdc, I_B = −10 mAdc)	$V_{BE(sat)}$	 −0.78 −0.85 —	 −0.98 −1.2 −1.7	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product (I_C = −30 mAdc, V_{CE} = −10 Vdc, f = 100 MHz)	f_T	400	—	MHz
Output Capacitance (V_{CB} = −5.0 Vdc, I_E = 0, f = 1.0 MHz)	C_{obo}	—	6.0	pF
Input Capacitance (V_{EB} = −0.5 Vdc, I_C = 0, f = 1.0 MHz)	C_{ibo}	—	6.0	pF
SWITCHING CHARACTERISTICS				
Turn-On Time (V_{CC} = −2.0 Vdc, V_{EB} = −3.0 Vdc, I_{B1} = −1.5 mAdc)	t_{on}	—	60	ns
Turn-Off Time (V_{CC} = −2.0 Vdc, I_C = −30 mAdc, I_{B1} = I_{B2} = −1.5 mAdc)	t_{off}	—	90	ns

(1) Applicable from 0.01 to 10 mAdc.
(2) Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤2.0%.