2N3734
2N3735

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

2N3736
2N3737

CASE 26, STYLE 1
TO-46 (TO-206AD)

GENERAL PURPOSE TRANSISTOR

NPN SILICON

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Refer to 2N3725 for graphs.

MAXIMUM RATINGS

Rating	Symbol	2N3734 2N3736	2N3735 2N3737	Unit
Collector-Emitter Voltage	V_{CEO}	30	50	Vdc
Collector-Base Voltage	V_{CBO}	50	75	Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Collector Current — Continuous	I_C	1.5		Adc
		TO-39 2N3734 2N3735	**TO-46 2N3736 2N3737**	
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	1.0 5.71	0.5 2.86	Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	4.0 22.8	2.0 11.4	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	2N3734 2N3736	2N3735 2N3737	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.044	0.088	°C/mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	0.175	0.35	°C/mW

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage(1) (I_C = 10 mAdc, I_B = 0)	 2N3734, 2N3736 2N3735, 2N3737	$V_{(BR)CEO}$	 30 50	 — —	Vdc
Collector-Base Breakdown Voltage (I_C = 10 μAdc, I_E = 0)	 2N3734, 2N3736 2N3735, 2N3737	$V_{(BR)CBO}$	 50 75	 — —	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)		$V_{(BR)EBO}$	5.0	—	Vdc
Collector Cutoff Current (V_{CE} = 25 Vdc, V_{EB} = 2 Vdc) (V_{CE} = 25 Vdc, V_{EB} = 2 Vdc, T_A = 100°C) (V_{CE} = 40 Vdc, V_{EB} = 2 Vdc) (V_{CE} = 40 Vdc, V_{EB} = 2 Vdc, T_A = 100°C)	 2N3734, 2N3736 2N3735, 2N3737 	I_{CEX}	 — — — —	 0.20 20 0.20 20	μAdc
Base Cutoff Current (V_{CE} = 25 Vdc, V_{EB} = 2 Vdc) (V_{CE} = 40 Vdc, V_{EB} = 2 Vdc)	 2N3734, 2N3736 2N3735, 2N3737	I_{BL}	 — —	 0.3 0.3	μAdc
ON CHARACTERISTICS					
DC Current Gain(1) (I_C = 10 mAdc, V_{CE} = 1 Vdc) (I_C = 150 mAdc, V_{CE} = 1 Vdc) (I_C = 500 mAdc, V_{CE} = 1 Vdc) (I_C = 1 Adc, V_{CE} = 1.5 Vdc) (I_C = 1.5 Adc, V_{CE} = 5 Vdc)	 2N3734, 2N3736 2N3735, 2N3737 2N3734, 2N3736 2N3735, 2N3737	h_{FE}	 35 40 35 30 20 30 20	 — — — 120 80 — —	—
Collector-Emitter Saturation Voltage(1) (I_C = 10 mAdc, I_B = 1 mAdc) (I_C = 150 mAdc, I_B = 15 mAdc) (I_C = 500 mAdc, I_B = 50 mAdc) (I_C = 1 Adc, I_B = 100 mAdc)		$V_{CE(sat)}$	 — — — —	 0.2 0.3 0.5 0.9	Vdc
Base-Emitter Saturation Voltage(1) (I_C = 10 mAdc, I_B = 1 mAdc) (I_C = 150 mAdc, I_B = 15 mAdc) (I_C = 500 mAdc, I_B = 50 mAdc) (I_C = 1 Adc, I_B = 100 mAdc)		$V_{BE(sat)}$	 — — — 0.9	 0.8 1.0 1.2 1.4	Vdc

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

Characteristic	Symbol	Min	Max	Unit
SMALL-SIGNAL CHARACTERISTICS				
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)	C_{obo}	—	9.0	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 100 kHz)	C_{ibo}	—	80	pF
Small-Signal Current Gain (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	h_{fe}	2.5	—	—
SWITCHING CHARACTERISTICS				
Turn-On Time (V_{CC} = 30 V, $V_{BE(off)}$ = 2.0 V, I_C = 1.0 Amp, I_{B1} = 100 mA)	t_{on}	—	40	ns
Turn-Off Time (V_{CC} = 30 V, $V_{BE(off)}$ = 2.0 V, I_C = 1.0 Amp, I_{B1} = 100 mA)	t_{off}	—	60	ns
Total Control Charge (I_C = 1 Amp, I_B = 100 mA, V_{CC} = 30 V)	Q_T	—	10	pC

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

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SWITCHING TIME EQUIVALENT TEST CIRCUITS