

SEMICONDUCTOR TECHNICAL DATA

2N3735, 2N3737

CRYSTALONCS
2805 Veterans Highway
Suite 14
Ronkonkoma, N.Y. 11774

NPN Silicon Small-Signal Transistors

...designed for general-purpose switching and amplifier applications.

MAXIMUM RATINGS			
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	40	Vdc
Collector-Base Voltage	V _{CBO}	75	Vdc
Emitter-Base Voltage	V _{EBO}	5.0	Vdc
Collector Current — Continuous	I _C	1.5	Adc
Device Dissipation	P _T	1.0	Watts
@ T _A = 25 °C	2N3735	5.71	mW/°C
Derate above 25 °C		0.5	Watts
	2N3737	2.86	mW/°C
Derate above 25 °C		2.9	Watts
@ T _C = 25 °C	2N3735	16.6	mW/°C
Derate above 25 °C		1.9	Watts
	2N3737	11.3	mW/°C
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-65 to 200	°C



2N3735
CASE 79-04, STYLE 1
TO-205AD (TO-39)



2N3737
CASE 26-03, STYLE 1
TO-206AB (TO-46)

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage ⁽¹⁾ (I _C = 10 mA, I _B = 0)	V _{(BR)CEO}	40	—	Vdc
Collector-Base Breakdown Voltage (I _C = 10 mA, I _E = 0)	V _{(BR)CBO}	75	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 10 mA, I _C = 0)	V _{(BR)EBO}	5.0	—	Vdc
Collector Cutoff Current (V _{CB} = 30 Vdc, I _E = 0)	I _{CBO}	—	0.25	μAdc
Collector Cutoff Current (V _{CE} = 30 Vdc, V _{EB} = 2.0 Vdc)	I _{CEX}	—	0.2	μAdc
(V _{CE} = 30 Vdc, V _{EB} = 2.0 Vdc, T _A = 150 °C)		—	250	μAdc
Emitter Cutoff Current (V _{EB} = 4.0 Vdc, I _C = 0)	I _{EBO}	—	0.1	μAdc

⁽¹⁾ Pulsed. Pulse Width: 250 to 350 μs. Duty Cycle: 1.0 to 2.0%.

(continues)

CRYSTALONCS
 2805 Veterans Highway
 Suite 14
 Ronkonkoma, N.Y. 11779

2N3735JAN, 2N3737JAN SERIES

ELECTRICAL CHARACTERISTICS — continued (T _A = 25° C unless otherwise noted.)				
Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain ⁽¹⁾ (I _C = 10 mA, V _{CE} = 1.0 Vdc) (I _C = 150 mA, V _{CE} = 1.0 Vdc) (I _C = 500 mA, V _{CE} = 1.0 Vdc) (I _C = 1.0 A, V _{CE} = 1.5 Vdc) (I _C = 1.5 A, V _{CE} = 5.0 Vdc) (I _C = 500 mA, V _{CE} = 1.0 Vdc, T _A = -65° C)	h _{FE}	35 40 40 20 20 15	— — 140 80 — —	—
Collector-Emitter Saturation Voltage (I _C = 10 mA, I _B = 1.0 mA) (I _C = 150 mA, I _B = 15 mA) ⁽¹⁾ (I _C = 500 mA, I _B = 50 mA) ⁽¹⁾ (I _C = 1.0 A, I _B = 100 mA) ⁽¹⁾	V _{CE(sat)}	— — — —	0.2 0.3 0.5 0.9	Vdc
Base-Emitter Saturation Voltage (I _C = 10 mA, I _B = 1.0 mA) (I _C = 150 mA, I _B = 15 mA) ⁽¹⁾ (I _C = 500 mA, I _B = 50 mA) ⁽¹⁾ (I _C = 1.0 A, I _B = 100 mA) ⁽¹⁾	V _{BE(sat)}	— — — 0.9	0.8 1.0 1.2 1.4	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Collector-Base Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 0.1 to 1.0 MHz)	C _{obo}	—	90	pF
Input Capacitance (V _{EB} = 0.5 Vdc, I _C = 0, f = 0.1 to 1.0 MHz)	C _{ibo}	—	80	pF
Small-Signal Current Transfer Ratio, Magnitude (I _C = 50 mA, V _{CE} = 10 Vdc, f = 100 MHz)	h _{fe}	2.5	6.0	—
SWITCHING CHARACTERISTICS (See Figure 9) (V _{CC} = 30 Vdc, I _C = 1.0 A, I _B = 100 mA, V _{BE} = 2.0 Vdc)				
Delay Time	t _d	—	80	ns
Rise Time	t _r	—	40	ns
Turn-Off Time	t _(off)	—	60	ns

3

ASSURANCE TESTING (Pre/Post Burn-In)				
Burn-In Conditions: T _A = 30 ± 5° C, V _{CB} = 40 Vdc, 10 Vdc JANS				
P _T = 1.0 W 2N3735, 0.5 W 2N3737				
Characteristics Tested	Symbol	Initial and End Point Limits		Unit
		Min	Max	
Collector Cutoff Current (V _{CB} = 30 Vdc)	I _{CBO}	—	250	nAdc
DC Current Gain ⁽¹⁾ (I _C = 500 mA, V _{CE} = 1.0 Vdc)	h _{FE}	40	140	—
Delta from Pre-Burn-In Measured Values		Min	Max	
Delta Collector Cutoff Current	ΔI _{CBO}	—	±100 or ±25 whichever is greater	% of Initial Value nAdc
Delta DC Current Gain ⁽¹⁾	Δh _{FE}	—	±15	% of Initial Value

(1) Pulsed. Pulse Width 250 to 350 μs. Duty Cycle 1.0 to 2.0%.