2N731 (SILICON)

CASE 22
(TO-18)

Collector electrically connected to case

NPN silicon transistor designed primarily for medium-power audio-frequency applications in industrial service.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage (R_{BE} = ≦ 10 ohms)	V_{CER}	40	Vdc
Collector-Base Voltage	V_{CB}	60	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current — Continuous	I_C	1.0	Adc
Total Device Dissipation @ T_A = 25°C	P_D	0.5	Watt
Derate above 25°C		3.33	mW/°C
Total Device Dissipation @ T_C = 25°C	P_D	1.5	Watts
Derate above 25°C		10	mW/°C
Operating Junction Temperature	T_J	+175	°C
Storage Temperature Range	T_{stg}	-65 to +200	°C

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (1) (I_C = 100 mAdc, R_{BE} = 10 ohms)	BV_{CER}	40	-	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	BV_{CBO}	60	-	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	BV_{EBO}	5.0	-	Vdc
Collector Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)	I_{CBO}	-	1.0	μAdc
(V_{CB} = 30 Vdc, I_E = 0, T_A = 150°C)		-	100	
ON CHARACTERISTICS				
DC Current Gain (1) (I_C = 150 mAdc, V_{CE} = 10 Vdc)	h_{FE}	40	120	-
Collector-Emitter Saturation Voltage (1) (I_C = 150 mAdc, I_B = 15 mAdc)	$V_{CE(sat)}$	-	1.5	Vdc
Base-Emitter Saturation Voltage (1) (I_C = 150 mAdc, I_B = 15 mAdc)	$V_{BE(sat)}$	-	1.3	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain—Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)	f_T	25	-	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{ob}	-	35	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)	C_{ib}	-	80	pF

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