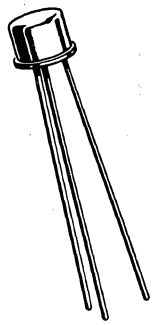
2N3712 (SILICON)



CASE 31
(TO-5)

Collector connected to case

NPN silicon annular transistor designed for high-voltage DC to VHF amplifier applications.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	150	Vdc
Collector-Base Voltage	V_{CB}	150	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current	I_C	200	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	1.0 5.71	Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	5.0 28.6	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, 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 = 30 mAdc, I_B = 0)	BV_{CEO}	150	-	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	BV_{CBO}	150	-	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	BV_{EBO}	5.0	-	Vdc
Collector Cutoff Current (V_{CB} = 75 Vdc, I_E = 0) (V_{CB} = 75 Vdc, I_E = 0, T_A = 150°C)	I_{CBO}	- -	0.1 50	μAdc
Emitter Cutoff Current (V_{BE} = 4.0 Vdc, I_C = 0)	I_{EBO}	-	0.1	μAdc
ON CHARACTERISTICS				
DC Current Gain [1] (I_C = 10 mAdc, V_{CE} = 10 Vdc) (I_C = 30 mAdc, V_{CE} = 10 Vdc)	h_{FE}	25 30	- 150	-
Collector-Emitter Saturation Voltage [1] (I_C = 50 mAdc, I_B = 5.0 mAdc)	$V_{CE(sat)}$	-	2.0	Vdc
Base-Emitter Saturation Voltage [1] (I_C = 50 mAdc, I_B = 5.0 mAdc)	$V_{BE(sat)}$	-	0.9	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain—Bandwidth Product (I_C = 30 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)	f_T	40	240	MHz
Output Capacitance (V_{CB} = 20 Vdc, I_E = 0, f = 1.0 MHz)	C_{ob}	1.0	9.0	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)	C_{ib}	-	80	pF
Small-Signal Current Gain (I_C = 30 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{fe}	25	-	-
Collector-Base Time Constant (I_E = 30 mAdc, V_{CB} = 10 Vdc, f = 31.9 MHz)	$r_b'C_c$	-	100	ps

[1] Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.