
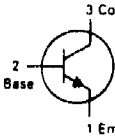


2N3300

TO-39

GENERAL PURPOSE
TRANSISTOR






2N3302

TO-18

GENERAL PURPOSE
TRANSISTOR



NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	Value	Unit	
Collector-Emitter Voltage (Applicable 0 to 10 mAdc)	V _{CEO}	30	Vdc	
Collector-Base Voltage	V _{CB0}	60	Vdc	
Emitter-Base Voltage	V _{EB0}	5.0	Vdc	
Collector Current — Continuous	I _C	500	mAdc	
Total Device Dissipation (at T _A = 25°C Derate above 25°C)	P _D	2N3300	0.8	Watt mW/°C
		2N3302	0.36	
Total Device Dissipation (at T _C = 25°C Derate above 25°C)	P _D	2N3300	3.0	Watts mW/°C
		2N3302	1.8	
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 Sustaining Voltage(1) (I _C = 10 mAdc, I _B = 0)	V _{CEO(sus)}	30	—	Vdc
Collector-Base Breakdown Voltage (I _C = 10 μAdc, I _E = 0)	V _{(BR)CB0}	60	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 10 μAdc, I _C = 0)	V _{(BR)EB0}	5.0	—	Vdc
Collector Cutoff Current (V _{CE} = 50 Vdc, V _{BE} = 0) (V _{CE} = 50 Vdc, V _{BE} = 0, T _A = 150°C)	I _{CES}	—	0.01	μAdc
		—	10	
Emitter Cutoff Current (V _{BE} = 3.0 Vdc, I _C = 0)	I _{EBO}	—	10	nAdc
Base Current (V _{CE} = 50 Vdc, V _{BE} = 0)	I _B	—	10	nAdc
ON CHARACTERISTICS				
DC Current Gain	h _{FE}	—		
(I _C = 0.1 mAdc, V _{CE} = 10 Vdc)		2N3300, 2N3302		
(I _C = 1.0 mAdc, V _{CE} = 10 Vdc)		2N3300, 2N3302		
(I _C = 10 mAdc, V _{CE} = 10 Vdc)(1)		2N3300, 2N3302		
(I _C = 150 mAdc, V _{CE} = 1.0 Vdc)(1)		2N3300, 2N3302		
(I _C = 150 mAdc, V _{CE} = 10 Vdc)(1)		2N3300, 2N3302		
(I _C = 500 mAdc, V _{CE} = 10 Vdc)(1)	2N3300, 2N3302			
Collector-Emitter Saturation Voltage (I _C = 150 mAdc, I _B = 15 mAdc) (I _C = 300 mAdc, I _B = 30 mAdc) (I _C = 500 mAdc, I _B = 50 mAdc)	V _{CE(sat)}	—	0.22	Vdc
		—	0.45	
		—	0.6	
Base-Emitter Saturation Voltage (I _C = 150 mAdc, I _B = 15 mAdc) (I _C = 300 mAdc, I _B = 30 mAdc) (I _C = 500 mAdc, I _B = 50 mAdc)	V _{BE(sat)}	—	1.1	Vdc
		—	1.3	
		—	1.5	
Base Emitter Voltage (I _C = 150 mA, V _{CE} = 10 V)	V _{BE(on)}	—	1.1 V	Max
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product (I _C = 50 mAdc, V _{CE} = 10 Vdc, f = 100 MHz)	f _T	250	—	MHz
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 140 kHz)	C _{ob0}	—	8.0	pF
Input Capacitance (V _{BE} = 2.0 Vdc, I _C = 0, f = 140 kHz)	C _{ib0}	—	20	pF
SWITCHING CHARACTERISTICS				
Turn-On Time (V _{CC} = 25 Vdc, I _C = 300 mAdc, I _{B1} = 30 mAdc)	t _{on}	—	60	ns
Turn-Off Time (V _{CC} = 25 Vdc, I _C = 300 mAdc, I _{B1} = I _{B2} = 30 mAdc)	t _{off}	—	150	ns

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



Quality Semi-Conductors