

2N2785

CASE 20-03, STYLE 8
TO-72 (TO-206AF)

DARLINGTON TRANSISTOR

NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage (Base 1 and Base 2 open)	V _{CE2O}	40	Vdc
Collector-Base Voltage	V _{CB1O}	60	Vdc
Emitter-Base Voltage (Pin 4 to Pin 2)	V _{E2B1O}	15 7.5	Vdc
Collector Current — Continuous	I _C	200	mAdc
Total Device Dissipation @ T _A = 25°C Derate above 25°C	P _D	0.5 2.9	Watt mW/°C
Total Device Dissipation @ T _C = 25°C Derate above 25°C	P _D	1.8 10.5	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 = 20 mAdc, I _{B1} = 0)	V _{(BR)CEO2O}	40	—	Vdc
Collector-Base Breakdown Voltage (I _C = 100 μAdc, I _{E2} = 0)	V _{(BR)CBO1O}	60	—	Vdc
Emitter-Base Breakdown Voltage (I _{E2} = 100 μAdc, I _C = 0)	V _{(BR)E2BO1O}	15	—	Vdc
Collector Cutoff Current (V _{CE} = 20 Vdc, I _B = 0)	I _{CEO}	—	500	nAdc
Collector Cutoff Current (V _{CB1} = 30 Vdc, I _E = 0) (V _{CB1} = 30 Vdc, I _E = 0, T _A = 150°C)	I _{CBO}	— —	0.05 10	μAdc
Emitter Cutoff Current (V _{E2B1} = 5.0 Vdc, I _C = 0)	I _{EBO}	—	20	nAdc

ON CHARACTERISTICS

DC Current Gain(1) (I _C = 1.0 mAdc, V _{CE2} = 4.0 Vdc) (I _C = 10 mAdc, V _{CE2} = 5.0 Vdc) (I _C = 100 mAdc, V _{CE2} = 5.0 Vdc)	h _{FE}	600 1200 2000	— — 20,000	—
Collector-Emitter Saturation Voltage (I _C = 15 mAdc, I _{B1} = 3.0 mAdc)	V _{CE(sat)}	—	1.0	Vdc

SMALL-SIGNAL CHARACTERISTICS

Output Capacitance (V _{CB1} = 10 Vdc, I _{E2} = 0, f = 1.0 MHz)	C _{ob1o}	—	30	pF
Input Impedance (I _C = 1.0 mAdc, V _{CB1} = 5.0 Vdc, f = 1.0 kHz)	h _{ib}	30	80	Ωms
Voltage Feedback Ratio (I _C = 1.0 mAdc, V _{CE2} = 5.0 Vdc, f = 1.0 kHz)	h _{rb}	—	10	X 10 ⁻⁴
Small-Signal Current Gain (I _C = 1.0 mAdc, V _{CE2} = 5.0 Vdc, f = 1.0 kHz)	h _{fe}	600	—	—
Current Gain — High Frequency (I _C = 1.0 mAdc, V _{CE2} = 5.0 Vdc, f = 10 MHz)	h _{fe}	1.0	—	—
Output Admittance (I _C = 1.0 mAdc, V _{CB1} = 5.0 Vdc, f = 1.0 kHz)	h _{ob}	—	0.5	μmhos

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