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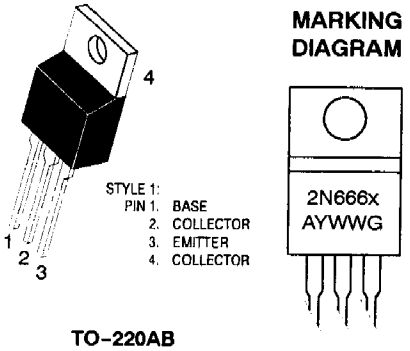
2N6667, 2N6668

Darlington Silicon Power Transistors

Designed for general–purpose amplifier and low speed switching applications.

- High DC Current Gain –
  h_{FE} = 3500 (Typ) @ I_C = 4.0 Adc
- Collector–Emitter Sustaining Voltage – @ 200 mAdc
  $V_{CEO(sus)}$ = 60 Vdc (Min) – 2N6667
  = 80 Vdc (Min) – 2N6668
- Low Collector–Emitter Saturation Voltage –
  $V_{CE(sat)}$ = 2.0 Vdc (Max)@ I_C = 5.0 Adc
- Monolithic Construction with Built–In Base–Emitter Shunt Resistors
- TO–220AB Compact Package
- Complementary to 2N6387, 2N6388
- Pb–Free Packages are Available*

PNP SILICON
DARLINGTON
POWER TRANSISTORS
10 A, 60–80 V, 65 W



MARKING DIAGRAM

TO–220AB

x = 7 or 8
A = Assembly Location
Y = Year
WW = Work Week

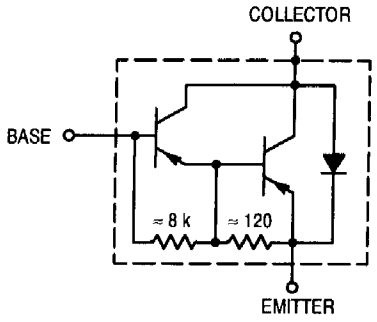


Figure 1. Darlington Schematic

MAXIMUM RATINGS (Note 1)

Rating	Symbol	2N6667	2N6668	Unit
Collector–Emitter Voltage	V_{CEO}	60	80	Vdc
Collector–Base Voltage	V_{CB}	60	80	Vdc
Emitter–Base Voltage	V_{EB}	5.0		Vdc
Collector Current – Continuous – Peak	I_C	10 15		Adc
Base Current	I_B	250		mAdc
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	65 0.52		W W/°C
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	2.0 0.016		W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +150		°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.92	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	°C/W

ELECTRICAL CHARACTERISTICS (Note 1) (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Sustaining Voltage (Note 2) (I_C = 200 mAdc, I_B = 0)	2N6667 2N6668	$V_{CEO(sus)}$	60 80	– –	Vdc
Collector Cutoff Current (V_{CE} = 60 Vdc, I_B = 0) (V_{CE} = 80 Vdc, I_B = 0)	2N6667 2N6668	I_{CEO}	– –	1.0 1.0	mAdc
Collector Cutoff Current (V_{CE} = 60 Vdc, $V_{EB(off)}$ = 1.5 Vdc) (V_{CE} = 80 Vdc, $V_{EB(off)}$ = 1.5 Vdc) (V_{CE} = 60 Vdc, $V_{EB(off)}$ = 1.5 Vdc, T_C = 125°C) (V_{CE} = 80 Vdc, $V_{EB(off)}$ = 1.5 Vdc, T_C = 125°C)	 2N6667 2N6668 2N6667 2N6668	I_{CEX}	 – – – –	 300 300 3.0 3.0	 μAdc mAdc
Emitter Cutoff Current (V_{BE} = 5.0 Vdc, I_C = 0)		I_{EBO}	–	5.0	mAdc
ON CHARACTERISTICS (Note 1)					
DC Current Gain (I_C = 5.0 Adc, V_{CE} = 3.0 Vdc) (I_C = 10 Adc, V_{CE} = 3.0 Vdc)		h_{FE}	1000 100	20000 –	–
Collector–Emitter Saturation Voltage (I_C = 5.0 Adc, I_B = 0.01 Adc) (I_C = 10 Adc, I_B = 0.1 Adc)		$V_{CE(sat)}$	– –	2.0 3.0	Vdc
Base–Emitter Saturation Voltage (I_C = 5.0 Adc, I_B = 0.01 Adc) (I_C = 10 Adc, I_B = 0.1 Adc)		$V_{BE(sat)}$	– –	2.8 4.5	Vdc
DYNAMIC CHARACTERISTICS					
Current Gain – Bandwidth Product (I_C = 1.0 Adc, V_{CE} = 5.0 Vdc, f_{test} = 1.0 MHz)		$\|h_{fe}\|$	20	–	–
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)		C_{ob}	–	200	pF
Small–Signal Current Gain (I_C = 1.0 Adc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)		h_{fe}	1000	–	–

1. Indicates JEDEC Registered Data.
2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.