BD676G, BD676AG, BD678G, BD678AG, BD680G, BD680AG, BD682G, BD682TG

Plastic Medium-Power Silicon PNP Darlingtons

This series of plastic, medium–power silicon PNP Darlington transistors can be used as output devices in complementary general–purpose amplifier applications.

Features

- High DC Current Gain
- Monolithic Construction
- BD676, 676A, 678, 678A, 680, 680A, 682 are complementary with BD675, 675A, 677, 677A, 679, 679A, 681
- BD678, 678A, 680, 680A are equivalent to MJE 700, 701, 702, 703
- These Devices are Pb-Free and are RoHS Compliant*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage BD676G, BD676AG BD678G, BD678AG BD680G, BD680AG BD682G, BD682TG	V _{CEO}	45 60 80 100	Vdc
Collector-Base Voltage BD676G, BD676AG BD678G, BD678AG BD680G, BD680AG BD682G, BD682TG	V _{CB}	45 60 80 100	Vdc
Emitter-Base Voltage	V _{EB}	5.0	Vdc
Collector Current	Ι _C	4.0	Adc
Base Current	Ι _Β	0.1	Adc
Total Device Dissipation @ T _C = 25°C Derate above 25°C	P _D	40 0.32	W W/°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

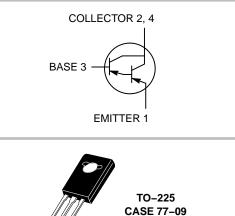
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{ extsf{ heta}JC}$	3.13	°C/W

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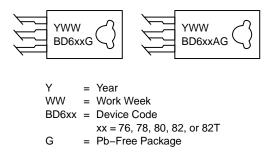
http://onsemi.com

4.0 AMP DARLINGTON POWER TRANSISTORS PNP SILICON 45, 60, 80, 100 VOLT, 40 WATT





MARKING DIAGRAMS



ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

*For additional information on our Pb–Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

BD676G, BD676AG, BD678G, BD678AG, BD680G, BD680AG, BD682G, BD682TG

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (Note 1) ($I_C = 50 \text{ mAdc}, I_B = 0$) BD676G, BD676AG BD678G, BD678AG BD680G, BD680AG BD682G, BD682TG	BV _{CEO}	45 60 80 100	- - - -	Vdc
Collector Cutoff Current (V_{CE} = Half Rated V_{CEO} , I_B = 0)	ICEO	_	500	μAdc
Collector Cutoff Current $(V_{CB} = Rated BV_{CEO}, I_E = 0)$ $(V_{CB} = Rated BV_{CEO}. I_E = 0, T_C = 100^{\circ}C)$	Ісво	-	0.2 2.0	mAdc
Emitter Cutoff Current ($V_{BE} = 5.0 \text{ Vdc}, I_C = 0$)	I _{EBO}	_	2.0	mAdc
DN CHARACTERISTICS	· · · · ·			
DC Current Gain (Note 1) ($I_C = 1.5 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$) BD676G, BD678G, BD680G, BD682G ($I_C = 2.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$) BD676AG, BD678AG, BD680AG	h _{FE}	750 750	-	-
Collector–Emitter Saturation Voltage (Note 1) ($I_C = 1.5$ Adc, $I_B = 30$ mAdc) BD678G, BD680G, BD682G ($I_C = 2.0$ Adc, $I_B = 40$ mAdc) BD676AG, BD678AG, BD680AG	V _{CE(sat)}	-	2.5 2.8	Vdc
Base-Emitter On Voltage (Note 1) ($I_C = 1.5$ Adc, $V_{CE} = 3.0$ Vdc) BD678G, BD680G, BD682G ($I_C = 2.0$ Adc, $V_{CE} = 3.0$ Vdc) BD676AG, BD678AG, BD680AG	V _{BE(on)}	-	2.5 2.5	Vdc
DYNAMIC CHARACTERISTICS			•	•
Small–Signal Current Gain ($I_C = 1.5 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}, f = 1.0 \text{ MHz}$)	h _{fe}	1.0	_	-
				L

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse Width \leq 300 μ s, Duty Cycle \leq 2.0%.

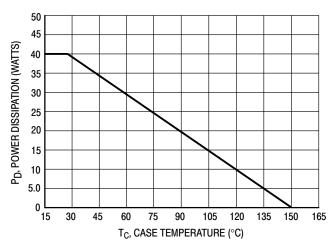
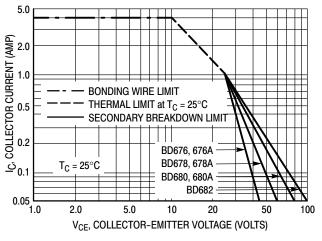


Figure 1. Power Temperature Derating





BD676G, BD676AG, BD678G, BD678AG, BD680G, BD680AG, BD682G, BD682TG

There are two limitations on the power handling ability of a transistor average junction temperature and secondary breakdown. Safe operating area curves indicate I_C-V_{CE} limits of the transistor that must be observed for reliable operation; e.g., the transistor must not be subjected to greater dissipation than the curves indicate.

At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by secondary breakdown.

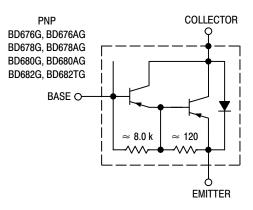


Figure 3. Darlington Circuit Schematic

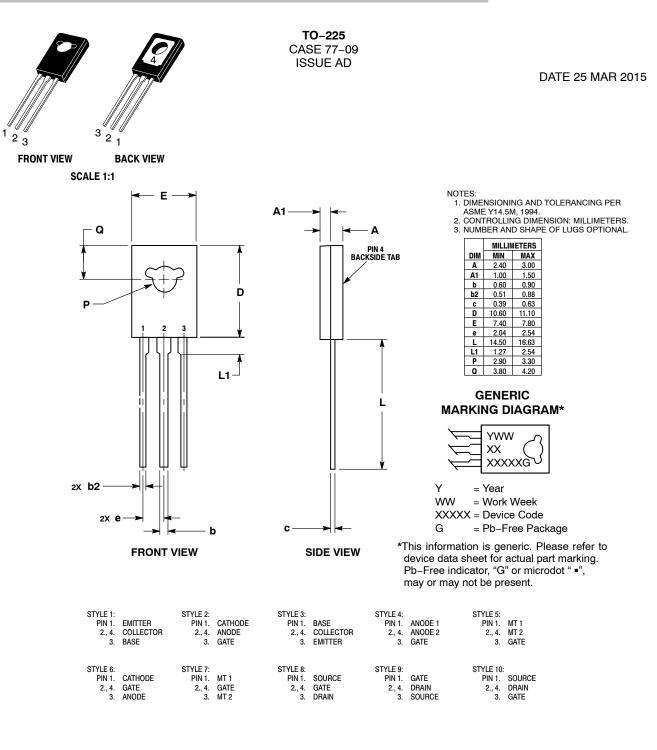
ORDERING INFORMATION

Device	Package	Shipping
BD676G	TO-225 (Pb-Free)	500 Units / Box
BD676AG	TO-225 (Pb-Free)	500 Units / Box
BD678G	TO-225 (Pb-Free)	500 Units / Box
BD678AG	TO-225 (Pb-Free)	500 Units / Box
BD680G	TO-225 (Pb-Free)	500 Units / Box
BD680AG	TO-225 (Pb-Free)	500 Units / Box
BD682G	TO-225 (Pb-Free)	500 Units / Box
BD682TG	TO-225 (Pb-Free)	50 Units / Rail

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

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TECHNICAL PUBLICATIONS:

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