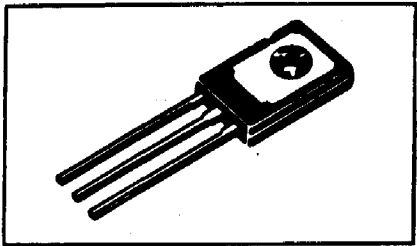


NPN	PNP
BD777*	BD776*
BD779*	BD778*
	BD780*

PLASTIC DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTORS
... designed for general purpose amplifier and high-speed switching applications.

- High DC Current Gain
 $h_{FE} = 1400$ (Typ) @ $I_C = 2.0$ Adc
- Collector-Emitter Sustaining Voltage -- @ 10 mAdc
 V_{CEO} (sus) = 45 Vdc (Min) — BD776, 778
60 Vdc (Min) — BD777, 779
80 Vdc (Min) — BD778, 780
- Reverse Voltage Protection Diode
- Monolithic Construction with Built-in Base-Emitter output Resistor

DARLINGTON 4-AMPERE COMPLEMENTARY SILICON POWER TRANSISTORS
45, 60, 80 VOLTS
15 WATTS

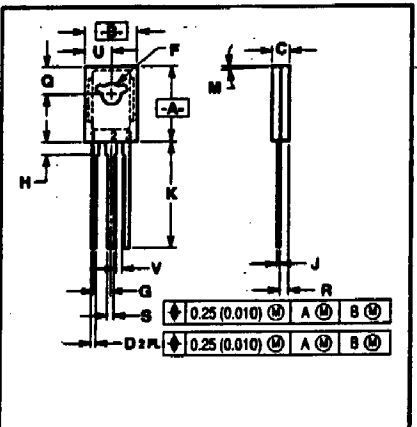
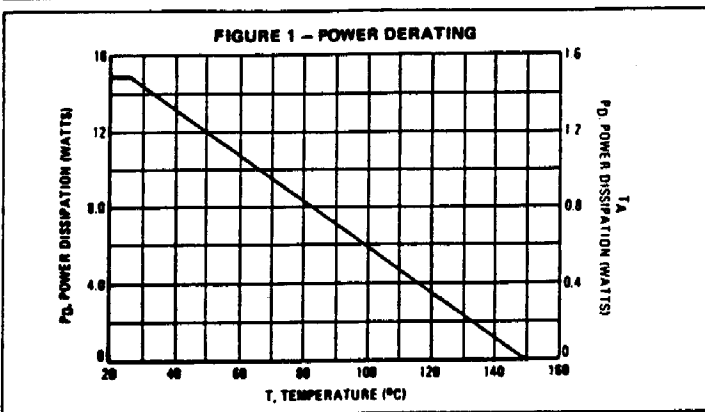


MAXIMUM RATINGS

Rating	Symbol	BD776	BD777 BD778	BD779 BD780	Unit
Collector-Emitter Voltage	V_{CEO}	45	60	80	Vdc
Collector-Base Voltage	V_{CB}	45	60	80	Vdc
Emitter-Base Voltage	V_{EB}	5.0			Vdc
Collector Current -- Continuous Peak	I_C	4.0			Adc
Base Current	I_B	100			mAdc
Total Device Dissipation $T_C = 25^\circ\text{C}$ -- Derate above 25°C	P_D	15			Watts W/C
Operating and Storage junction Temperature Range	T_J, T_{stg} T_J, T_{stg}	- 65 to + 150			$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	8.34	$^\circ\text{C/W}$
Thermal Resistance, junction to Ambient	$R_{\theta JA}$	83.3	$^\circ\text{C/W}$



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 077-01 TYPE IS OBSOLETE. NEW STANDARD 077-07.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.99	11.94	0.433	0.470
B	7.56	7.74	0.298	0.305
C	2.42	2.68	0.095	0.106
D	0.51	0.68	0.020	0.027
F	2.83	3.30	0.112	0.130
G	2- ϕ BSC		0.081 BSC	
H	1.27	2.41	0.050	0.095
J	0.30	0.63	0.012	0.025
K	14.81	16.63	0.575	0.655
M	3 $^\circ$ TYP		3 $^\circ$ TYP	
O	3.76	4.01	0.148	0.158
R	1.15	1.58	0.045	0.062
S	0.64	0.98	0.025	0.039
U	3.89	3.93	0.153	0.155
V	1.02	—	0.040	—

STYLE 1:
PIN 1: EMITTER
2: COLLECTOR
3: BASE

TO-225AA TYPE

◇ Annular Semiconductors Patented by Motorola Inc.
△ Trademark of Motorola Inc.



BD777, BD779 NPN BD776, BD778, BD780 PNP

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

CHARACTERISTIC	SYMBOL	MIN.	MAX.	UNIT
OFF CHARACTERISTICS				
Collector-Emitter Collector-Emitter Sustaining Voltage (1) ($I_C = 10\text{ mAdc}$, $I_B = 0$) BD776 BD777, BD778 BD779, BD780	V_{CE0} (sus)	45 60 80		Vdc
Collector Cutoff Current ($V_{CE} = 20\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 30\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 40\text{ Vdc}$, $I_B = 0$) BD776 BD777, BD778 BD779, BD780	I_{CEO}		100 100 100	μAdc
Collector Cutoff Current ($V_{CB} = \text{Rated}$, V_{CE0} (sus), $I_E = 0$) ($V_{CB} = \text{Rated}$, V_{CE0} (sus), $I_E = 0$, $T_C = 100^\circ\text{C}$)	I_{CBO}		1.0 100	μAdc
Emitter Cutoff Current ($V_{BE} = 5.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}		1.0	μAdc
ON CHARACTERISTICS				
DC Current Gain ($I_C = 2.0\text{ Adc}$, $V_{CE} = 3.0\text{ Vdc}$)	h_{FE}	750		
Collector-Emitter Saturation Voltage ($I_C = 1.5\text{ Adc}$, $I_B = 6\text{ mAdc}$)	$V_{CE}(\text{Sat})$		1.5	Vdc
Base-Emitter Saturation Voltage ($I_C = 1.5\text{ Adc}$, $I_B = 6\text{ mAdc}$)	$V_{BE}(\text{Sat})$		2.5	Vdc
Base-Emitter On Voltage ($I_C = 1.5\text{ Adc}$, $V_{CE} = 3\text{ Vdc}$)	$V_{BE}(\text{On})$		2.3	Vdc
Output Diode Voltage Drop ($I_{EC} = 2.0\text{ Adc}$)	V_{EC}		2.0	Vdc
DYNAMIC CHARACTERISTICS				
Current Gain Bandwidth Product ($I_C = 1.0\text{ Adc}$, $V_{CE} = 2.0\text{ Vdc}$)	f_T	20		MHz
Turn-On Time ($I_C = 250\text{ mA}$, $V_{CE} = 2\text{ V}$) BD775-777-779 BD776-778-780	SYMBOL		TYP.	UNIT
	t_{on}		250 250 150	ns
Turn Off Time ($I_C = 250\text{ mA}$, $V_{CE} = 2\text{ V}$) BD775-777-779 BD776-778-780	t_{off}		800 400	ns

FIGURE 2 - ACTIVE REGION SAFE OPERATING AREA

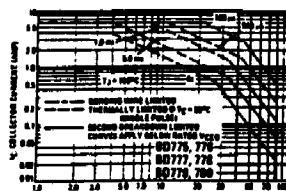


FIGURE 3 - TYPICAL DC CURRENT GAIN

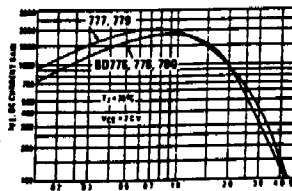


FIGURE 4 - ON-STATE VOLTAGE REGULATION

