

Complementary Plastic Silicon Power Transistors

... designed for low power audio amplifier and low-current, high speed switching applications.

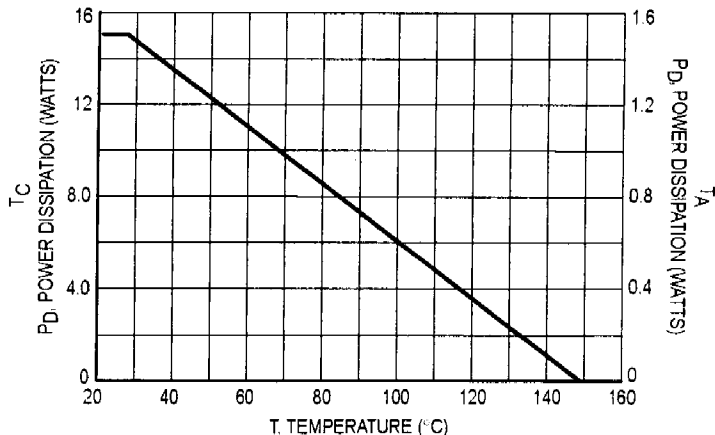
- High Collector-Emitter Sustaining Voltage —
 $V_{CE(sus)} = 80 \text{ Vdc (Min)} — \text{BD789, BD790}$
 $= 100 \text{ Vdc (Min)} — \text{BD791, BD792}$
- High DC Current Gain @ $I_C = 200 \text{ mAdc}$
 $h_{FE} = 40-250$
- Low Collector-Emitter Saturation Voltage —
 $V_{CE(sat)} = 0.5 \text{ Vdc (Max)} @ I_C = 500 \text{ mAdc}$
- High Current Gain — Bandwidth Product —
 $f_T = 40 \text{ MHz (Min)} @ I_C = 100 \text{ mAdc}$

*MAXIMUM RATINGS

Rating	Symbol	BD789 BD790	BD791 BD792	Unit
Collector-Emitter Voltage	V_{CEO}	80	100	Vdc
Collector-Base Voltage	V_{CB}	80	100	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Collector Current — Continuous — Peak	I_C	4.0 8.0		Adc
Base Current	I_B	1.0		Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	15 0.12		Watts W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	8.34	$^\circ\text{C/W}$



NPN
BD789

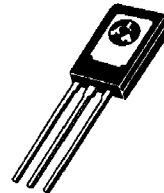
BD791*

PNP
BD790

BD792*

*Motorola Preferred Device

4 AMPERE
POWER TRANSISTORS
COMPLEMENTARY
SILICON
80, 100 VOLTS
15 WATTS



TO-225AA

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Quality Semi-Conductors



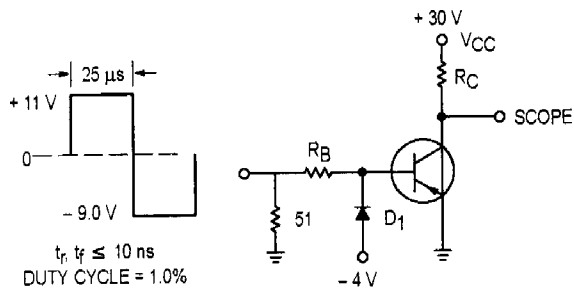
BD789 BD791 BD790 BD792

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

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage (1) (I _C = 10 mA, I _B = 0)	BD789, BD790 BD791, BD792	V _{CEO(sus)}	80 100	— —	Vdc
Collector Cutoff Current (V _{CE} = 40 Vdc, I _B = 0) (V _{CE} = 50 Vdc, I _B = 0)	BD789, BD790 BD791, BD792	I _{CEO}	— —	100 100	μAdc
Collector Cutoff Current (V _{CE} = 80 Vdc, V _{BE(off)} = 1.5 Vdc) (V _{CE} = 100 Vdc, V _{BE(off)} = 1.5 Vdc) (V _{CE} = 40 Vdc, V _{BE(off)} = 1.5 Vdc, T _C = 125°C) (V _{CE} = 50 Vdc, V _{BE(off)} = 1.5 Vdc, T _C = 125°C)	BD789, BD790 BD791, BD792 BD789, BD790 BD791, BD792	I _{CEx}	— — — —	1.0 1.0 0.1 0.1	μAdc mAdc
Emitter Cutoff Current (V _{EB} = 6.0 Vdc, I _C = 0)		I _{EBO}	—	1.0	μAdc
ON CHARACTERISTICS (1)					
DC Current Gain (I _C = 200 mA, V _{CE} = 3.0 Vdc) (I _C = 1.0 A, V _{CE} = 3.0 Vdc) (I _C = 2.0 A, V _{CE} = 3.0 Vdc) (I _C = 4.0 A, V _{CE} = 3.0 Vdc)		h _{FE}	40 20 10 5.0	250 — — —	—
Collector Emitter Saturation Voltage (I _C = 500 mA, I _B = 50 mA) (I _C = 1.0 A, I _B = 100 mA) (I _C = 2.0 A, I _B = 200 mA) (I _C = 4.0 A, I _B = 800 mA)		V _{CE(sat)}	— — — —	0.5 1.0 2.5 3.0	Vdc
Base-Emitter Saturation Voltage (I _C = 2.0 A, I _B = 200 mA)		V _{BE(sat)}	—	1.8	Vdc
Base-Emitter On Voltage (I _C = 200 mA, V _{CE} = 3.0 Vdc)		V _{BE(on)}	—	1.5	Vdc
DYNAMIC CHARACTERISTICS					
Current-Gain — Bandwidth Product (I _C = 100 mA, V _{CE} = 10 Vdc, f = 10 MHz)		f _T	40	—	MHz
Output Capacitance (V _{CB} = 10 Vdc, I _C = 0, f = 0.1 MHz)	BD789, BD791 BD790, BD792	C _{ob}	— —	50 70	pF
Small-Signal Current Gain (I _C = 200 mA, V _{CE} = 10 Vdc, f = 1.0 kHz)		h _{fe}	10	—	—

* Indicates JEDEC Registered Data.

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



R_B AND R_C VARIED TO OBTAIN DESIRED CURRENT LEVELS
 D₁ MUST BE FAST RECOVERY TYPE, eg
 MBR340 USED ABOVE I_B ≈ 100 mA
 MSD6100 USED BELOW I_B ≈ 100 mA
 FOR PNP TEST CIRCUIT, REVERSE ALL POLARITIES.

Figure 2. Switching Time Test Circuit

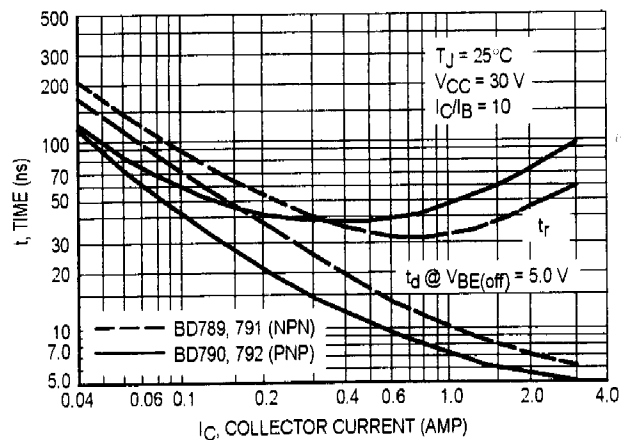


Figure 3. Turn-On Time