

Complementary Plastic Silicon Power Transistors

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

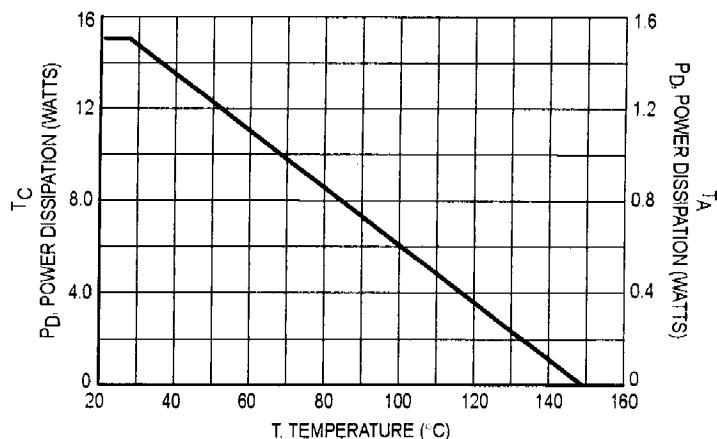
- High Collector-Emitter Sustaining Voltage —
 $V_{CE(sus)} = 80 \text{ Vdc (Min)} — \text{BD789, BD790}$
 $= 100 \text{ Vdc (Min)} — \text{BD791, BD792}$
- High DC Current Gain @ $I_C = 200 \text{ mAdc}$
 $h_{FE} = 40-250$
- Low Collector-Emitter Saturation Voltage —
 $V_{CE(sat)} = 0.5 \text{ Vdc (Max)}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

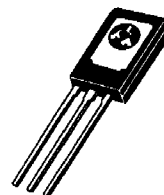
BD791*

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) ($I_C = 10\text{ mA}$, $I_B = 0$)	$V_{CEO(sus)}$	80 100	— —	Vdc
Collector Cutoff Current ($V_{CE} = 40\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 50\text{ Vdc}$, $I_B = 0$)	I_{CEO}	— —	100 100	μAdc
Collector Cutoff Current ($V_{CE} = 80\text{ Vdc}$, $V_{BE(off)} = 1.5\text{ Vdc}$) ($V_{CE} = 100\text{ Vdc}$, $V_{BE(off)} = 1.5\text{ Vdc}$) ($V_{CE} = 40\text{ Vdc}$, $V_{BE(off)} = 1.5\text{ Vdc}$, $T_C = 125^\circ\text{C}$) ($V_{CE} = 50\text{ Vdc}$, $V_{BE(off)} = 1.5\text{ Vdc}$, $T_C = 125^\circ\text{C}$)	I_{CEX}	— — — —	1.0 1.0 0.1 0.1	μAdc mAdc
Emitter Cutoff Current ($V_{EB} = 6.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	1.0	μAdc
ON CHARACTERISTICS (1)				
DC Current Gain ($I_C = 200\text{ mA}$, $V_{CE} = 3.0\text{ Vdc}$) ($I_C = 1.0\text{ A}$, $V_{CE} = 3.0\text{ Vdc}$) ($I_C = 2.0\text{ A}$, $V_{CE} = 3.0\text{ Vdc}$) ($I_C = 4.0\text{ A}$, $V_{CE} = 3.0\text{ Vdc}$)	h_{FE}	40 20 10 5.0	250 — — —	—
Collector Emitter Saturation Voltage ($I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$) ($I_C = 1.0\text{ A}$, $I_B = 100\text{ mA}$) ($I_C = 2.0\text{ A}$, $I_B = 200\text{ mA}$) ($I_C = 4.0\text{ A}$, $I_B = 800\text{ mA}$)	$V_{CE(sat)}$	— — — —	0.5 1.0 2.5 3.0	Vdc
Base-Emitter Saturation Voltage ($I_C = 2.0\text{ A}$, $I_B = 200\text{ mA}$)	$V_{BE(sat)}$	—	1.8	Vdc
Base-Emitter On Voltage ($I_C = 200\text{ mA}$, $V_{CE} = 3.0\text{ Vdc}$)	$V_{BE(on)}$	—	1.5	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain — Bandwidth Product ($I_C = 100\text{ mA}$, $V_{CE} = 10\text{ Vdc}$, $f = 10\text{ MHz}$)	f_T	40	—	MHz
Output Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_C = 0$, $f = 0.1\text{ MHz}$)	C_{ob}	— —	50 70	pF
Small-Signal Current Gain ($I_C = 200\text{ mA}$, $V_{CE} = 10\text{ Vdc}$, $f = 1.0\text{ kHz}$)	h_{fe}	10	—	—

* Indicates JEDEC Registered Data.

(1) Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

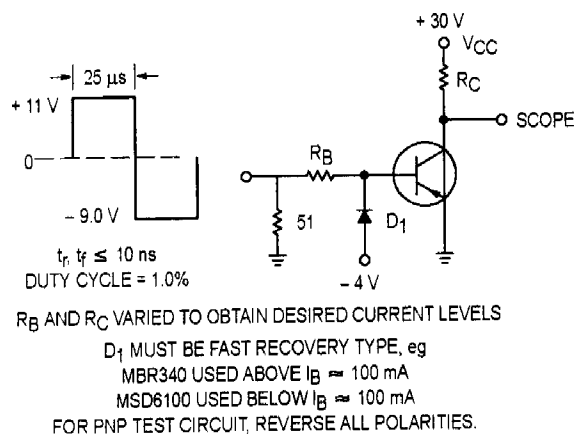


Figure 2. Switching Time Test Circuit

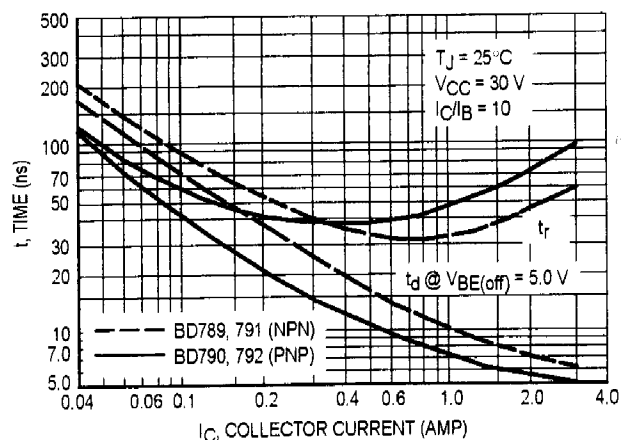


Figure 3. Turn-On Time