

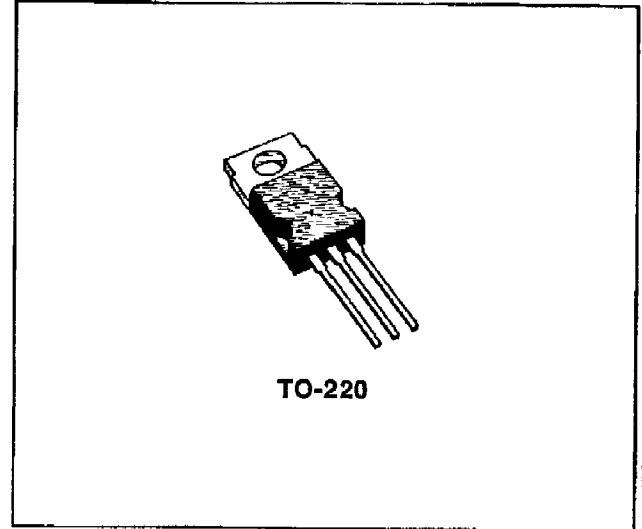
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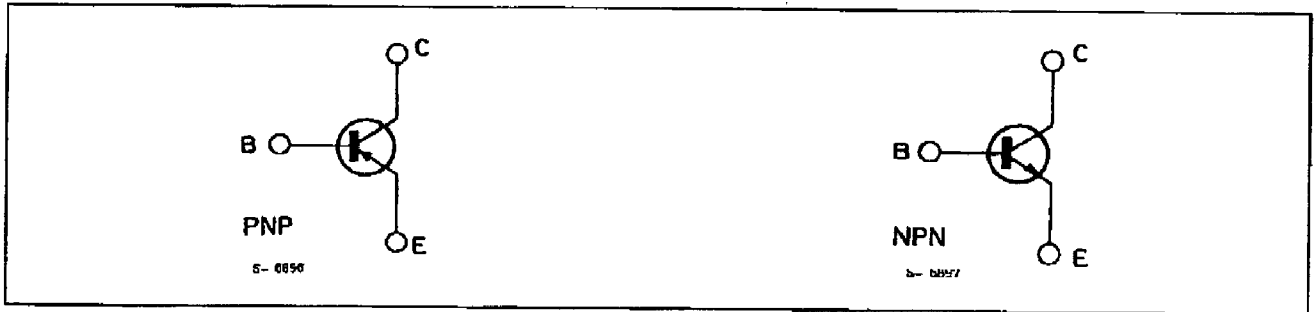
BD705/706/707/708
BD709/710/711/712

DESCRIPTION

The BD705, BD707, BD709 and BD711 are silicon epitaxial-base NPN power transistors in Jedec TO-220 plastic package intended for use in power linear and switching applications. The complementary PNP types are the BD706, BD708, BD710 and BD712 respectively.



INTERNAL SCHEMATIC DIAGRAMS

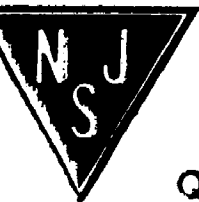


ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN PNP*	Value				Unit
			BD705 BD706	BD707 BD708	BD709 BD710	BD711 BD712	
V_{CBO}	Collector-emitter Voltage ($I_E = 0$)		45	60	80	100	V
V_{CES}	Collector-emitter Voltage ($V_{BE} = 0$)		45	60	80	100	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)		45	60	80	100	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)		5				V
I_C	Collector Current		12				A
I_B	Base Current		5				A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$		75				W
T_{stg}	Storage Temperature		- 65 to 150				$^\circ C$
T_j	Junction Temperature		150				$^\circ C$

* For PNP types voltage and current values are negative.

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ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	for BD705/706 $V_{CB} = 45\text{ V}$			100	μA	
		for BD707/708 $V_{CB} = 60\text{ V}$			100	μA	
		for BD709/710 $V_{CB} = 80\text{ V}$			100	μA	
		for BD711/712 $V_{CB} = 100\text{ V}$			100	μA	
		$T_{case} = 150\text{ }^{\circ}\text{C}$					
		for BD705/706 $V_{CB} = 45\text{ V}$			1	mA	
		for BD707/708 $V_{CB} = 60\text{ V}$			1	mA	
		for BD709/710 $V_{CB} = 80\text{ V}$ for BD711/712 $V_{CB} = 100\text{ V}$			1	mA	
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	for BD705/706 $V_{CE} = 22\text{ V}$			1	mA	
		for BD707/708 $V_{CE} = 30\text{ V}$			1	mA	
		for BD709/710 $V_{CE} = 40\text{ V}$			1	mA	
		for BD711/712 $V_{CE} = 50\text{ V}$			1	mA	
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			1	mA	
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100\text{ mA}$	for BD705/706	45		V	
			for BD707/708	60		V	
			for BD709/710	80		V	
			for BD711/712	100		V	
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 4\text{ A}$ $I_B = 0.4\text{ A}$			1	V	
V_{CEK}^*	Knee Voltage	$I_C = 3\text{ A}$ $I_B = **$			0.4	V	
V_{BE}^*	Base-emitter Voltage	$I_C = 4\text{ A}$ $V_{CE} = 4\text{ V}$			1.5	V	
h_{FE}^*	DC Current Gain	$I_C = 0.5\text{ A}$	$V_{CE} = 2\text{ V}$	40	120	400	
			$V_{CE} = 2\text{ V}$				
			for BD705/706	30			
		$I_C = 2\text{ A}$	for BD707/708	30			
			for BD709/710	30			
			$V_{CE} = 4\text{ V}$				
		$I_C = 4\text{ A}$	for BD705/706	20	30	150	
			for BD707/708	15		150	
			for BD709/710	15		150	
			for BD711/712	15		150	
$I_C = 10\text{ A}$	$V_{CE} = 4\text{ V}$						
	for BD705/706	5	10				
	for BD707/708	5	10				
	for BD709/710		8				
for BD711/712		8					
f_T	Transition Frequency	$I_C = 300\text{ mA}$ $V_{CE} = 3\text{ V}$	3			MHz	

* Pulsed : pulse duration = 300 μs , duty cycle = 1.5 %.

** Value for which $I_C = 3.3\text{ A}$ at $V_{CE} = 2\text{ V}$.

For PNP types voltage and current values are negative.