

EPITAXIAL-BASE NPN/PNP



BD905 BD906
 BD907 BD908
 BD909 BD910
 BD911 BD912

POWER LINEAR AND SWITCHING APPLICATIONS

The BD 905, BD 907, BD 909, BD 911 are silicon epitaxial-base NPN power transistors in Jedec TO-220 plastic package. They are intended for use in power linear and switching applications.

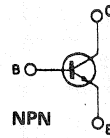
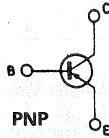
The complementary PNP types are the BD 906, BD 908, BD 910 and BD 912 respectively.

ABSOLUTE MAXIMUM RATINGS

	NPN PNP*	BD905 BD906	BD907 BD908	BD909 BD910	BD911 BD912
V_{CBO}	Collector-base voltage ($I_E = 0$)	45V	60V	80V	100V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	45V	60V	80V	100V
V_{EBO}	Emitter-base voltage ($I_C = 0$)			5V	
I_E, I_C	Emitter and collector current			15A	
I_B	Base current			5A	
P_{tot}	Total power dissipation at $T_{case} \leq 25^\circ C$			90W	
T_{stg}	Storage temperature			-65 to $150^\circ C$	
T_j	Junction temperature			$150^\circ C$	

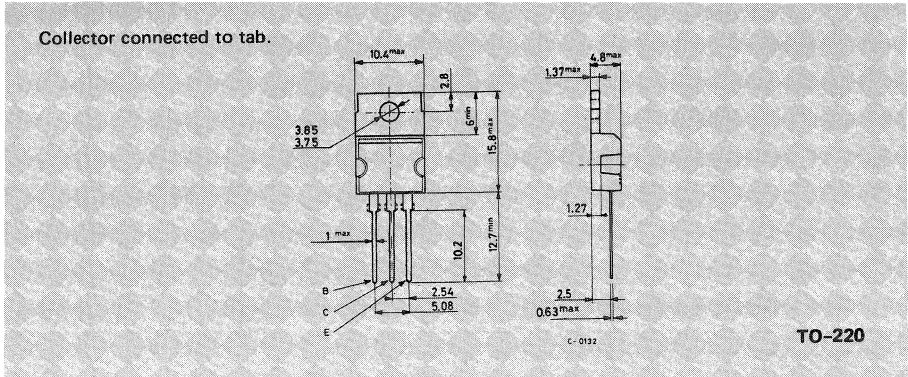
* For PNP types voltage and current values are negative

INTERNAL SCHEMATIC DIAGRAMS



MECHANICAL DATA

Dimensions in mm





BD905 BD906
BD907 BD908
BD909 BD910
BD911 BD912

THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	1.4	$^{\circ}C/W$
------------------	----------------------------------	-----	-----	---------------

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

Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current ($I_E = 0$)	for BD905/906 for BD907/908 for BD909/910 for BD911/912 $T_{case} = 150^{\circ}C$ for BD905/906 for BD907/908 for BD909/910 for BD911/912	$V_{CB} = 45V$ $V_{CB} = 60V$ $V_{CB} = 80V$ $V_{CB} = 100V$ $V_{CB} = 45V$ $V_{CB} = 60V$ $V_{CB} = 80V$ $V_{CB} = 100V$	500 500 500 500 5 5 5 5	μA μA μA μA mA mA mA mA
I_{CEO}	Collector cutoff current ($I_B = 0$)	for BD905/906 for BD907/908 for BD909/910 for BD911/912	$V_{CE} = 30V$ $V_{CE} = 30V$ $V_{CE} = 40V$ $V_{CE} = 50V$	1 1 1 1	mA mA mA mA
I_{EBO}	Emitter cutoff current ($I_C = 0$)	$V_{EB} = 5V$		1	mA
$V_{CEO(sus)}$ *	Collector-emitter sustaining voltage ($I_B = 0$)	$I_C = 100mA$	for BD905/906 for BD907/908 for BD909/910 for BD911/912	45 60 80 100	V V V V
$V_{CE(sat)}$ *	Collector-emitter saturation voltage	$I_C = 5A$ $I_C = 10A$	$I_B = 0.5A$ $I_B = 2.5A$	1 3	V V
$V_{BE(sat)}$ *	Base-emitter saturation voltage	$I_C = 10A$	$I_B = 2.5A$	2.5	V
V_{BE} *	Base-emitter voltage	$I_C = 5A$	$V_{CE} = 4V$	1.5	V
h_{FE} *	DC current gain	$I_C = 0.5A$ $I_C = 5A$ $I_C = 10A$	$V_{CE} = 4V$ $V_{CE} = 4V$ $V_{CE} = 4V$	40 15 5	250 150 —
f_T	Transition frequency	$I_C = 0.5A$	$V_{CE} = 4V$	3	MHz

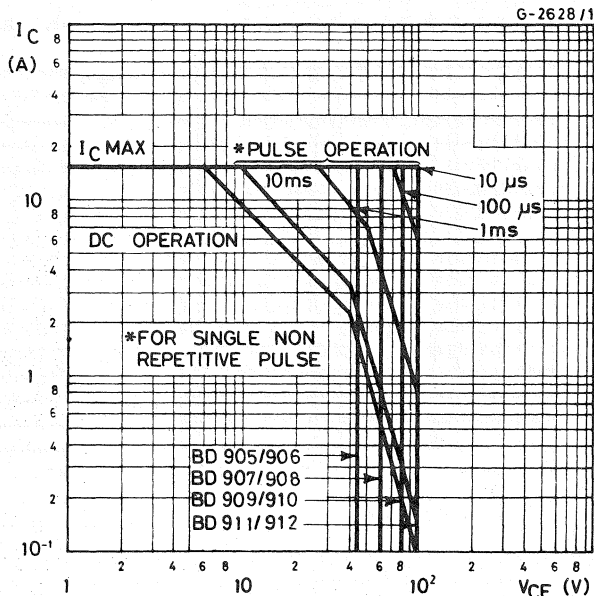
* Pulsed: pulse duration = 300 μs , duty cycle = 1.5%

For PNP types voltage and current values are negative

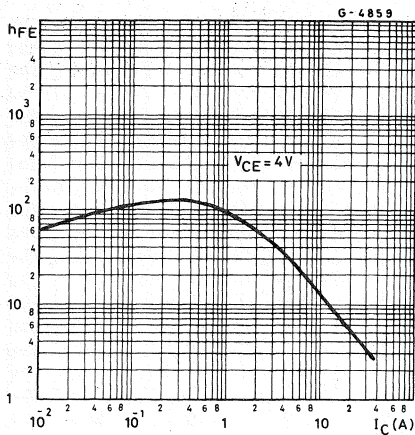


BD905 BD906
BD907 BD908
BD909 BD910
BD911 BD912

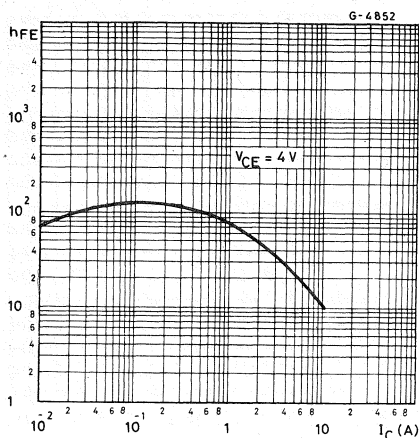
Safe operating areas



DC current gain (NPN types)

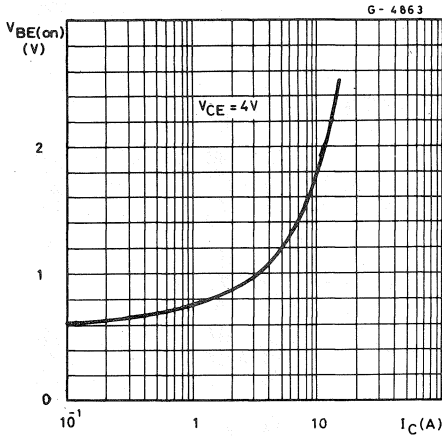


DC current gain (PNP types)

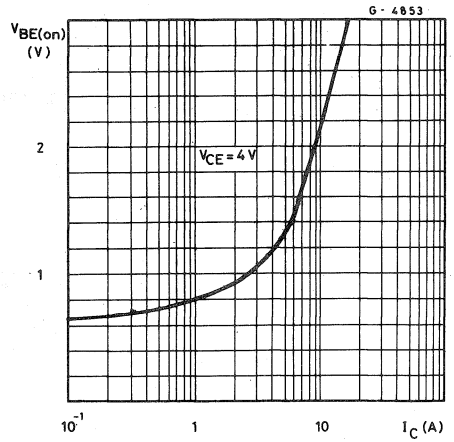




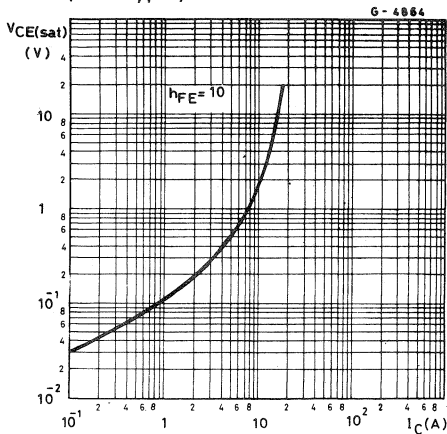
DC transconductance (NPN types)



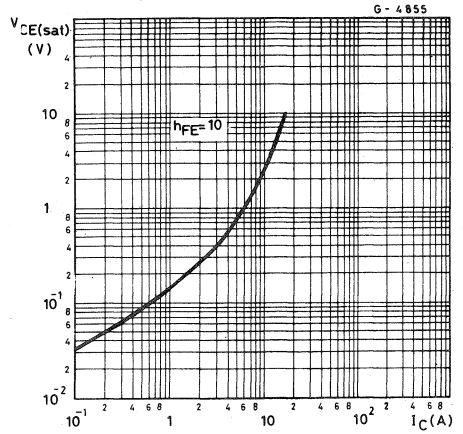
DC transconductance (PNP types)



Collector-emitter saturation voltage (NPN types)



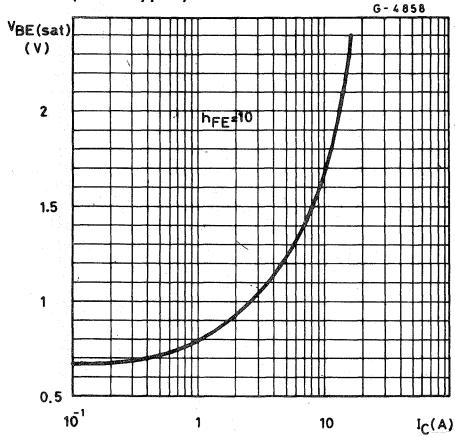
Collector-emitter saturation voltage (PNP types)



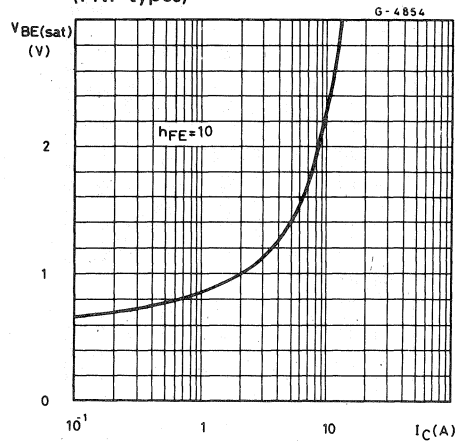


BD905 BD906
BD907 BD908
BD909 BD910
BD911 BD912

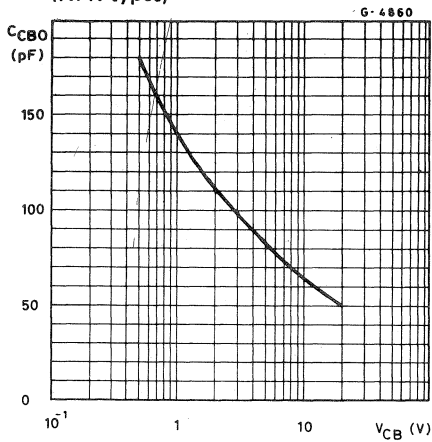
Base-emitter saturation voltage
(NPN types)



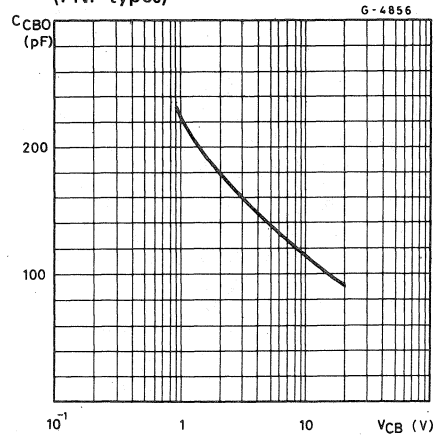
Base-emitter saturation voltage
(PNP types)



Collector-base capacitance
(NPN types)



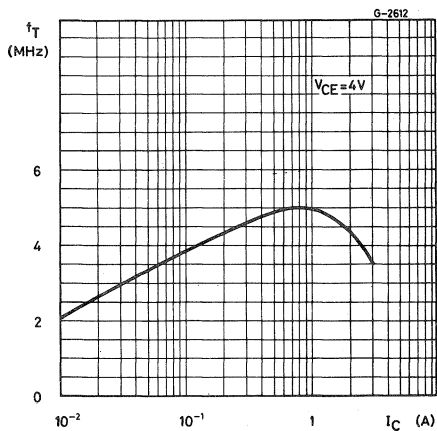
Collector-base capacitance
(PNP types)



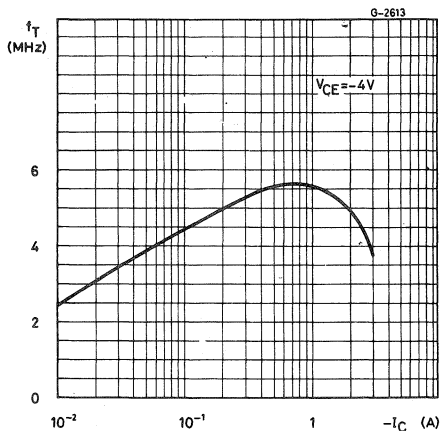


BD905 BD906
BD907 BD908
BD909 BD910
BD911 BD912

Transition frequency (NPN types)



Transition frequency (PNP types)



Power rating chart

