Silicon NPN Transistor

BD909

Power Linear and Switching

80V / 15A

DATASHEET

OEM –SGS Ates

Source: SGS Ates Databook 1977

BD 905
BD 907
BD 909
BD 911

EPITAXIAL-BASE NPN

POWER LINEAR AND SWITCHING APPLICATIONS

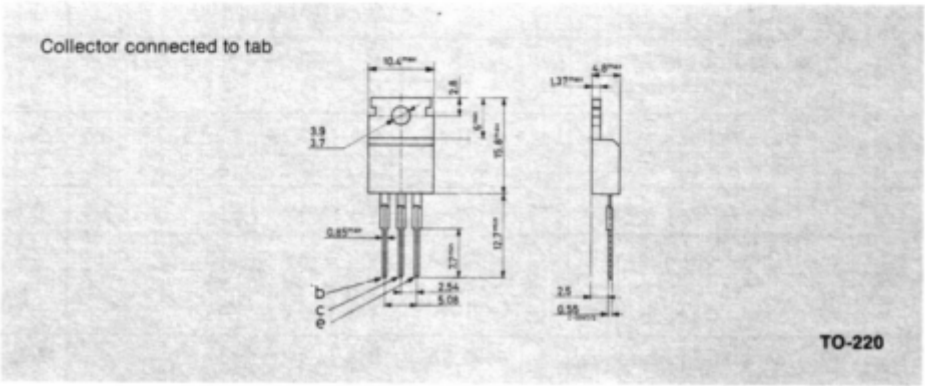
The BD 905, BD 907, BD 909, BD 911 are silicon epitaxial-base NPN power transistors in Jedec TO-220 plastic package. They are intended for use in power linear and switching applications.
The complementary PNP types are the BD 906, BD 908, BD 910 and BD 912 respectively.

ABSOLUTE MAXIMUM RATINGS

		BD905	BD907	BD909	BD911
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 $T_{case} \leq 25°C$	90W			
T_{stg}	Storage temperature	-65 to 150°C			
T_j	Junction temperature	150°C			

MECHANICAL DATA

Dimensions in mm



BD 905
BD 907
BD 909
BD 911

THERMAL DATA

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

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

Parameter		Test conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current ($I_E = 0$)	for **BD905**	V_{CB} = 45V			500	μA
		for **BD907**	V_{CB} = 60V			500	μA
		for **BD909**	V_{CB} = 80V			500	μA
		for **BD911**	V_{CB} = 100V			500	μA
		T_{case} = 150°C					
		for **BD905**	V_{CB} = 45V			5	mA
		for **BD907**	V_{CB} = 60V			5	mA
		for **BD909**	V_{CB} = 80V			5	mA
		for **BD911**	V_{CB} = 100V			5	mA
I_{CEO}	Collector cutoff current ($I_B = 0$)	for **BD905**	V_{CE} = 30V			1	mA
		for **BD907**	V_{CE} = 30V			1	mA
		for **BD909**	V_{CE} = 40V			1	mA
		for **BD911**	V_{CE} = 50V			1	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**	45			V
			for **BD907**	60			V
			for **BD909**	80			V
			for **BD911**	100			V
$V_{CE\ (sat)}$*	Collector-emitter saturation voltage	I_C = 5A	I_B = 0.5A			1	V
		I_C = 10A	I_B = 2.5A			3	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	V_{CE} = 4V	40		250	—
		I_C = 5A	V_{CE} = 4V	15		150	—
		I_C = 10A	V_{CE} = 4V	5			—
f_T	Transition frequency	I_C = 0.5A	V_{CE} = 4V	3			MHz

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

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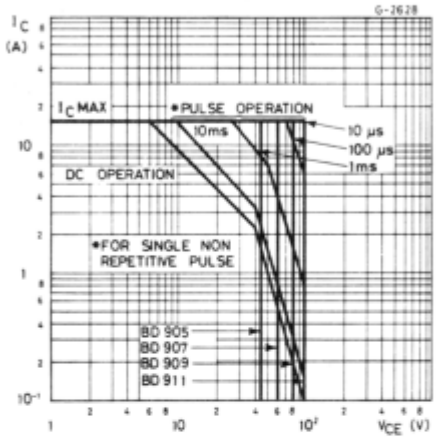
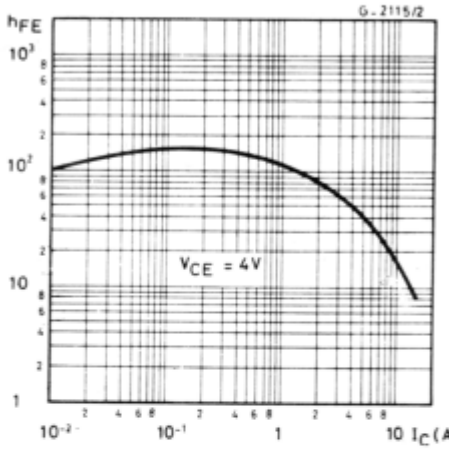
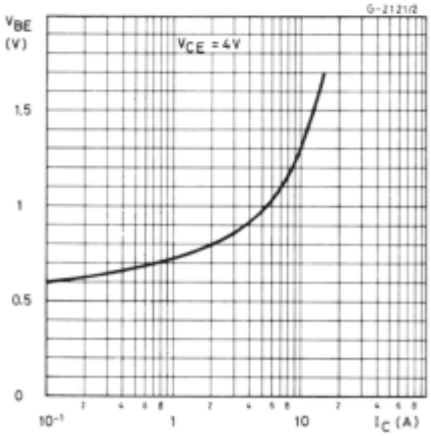
Safe operating areas



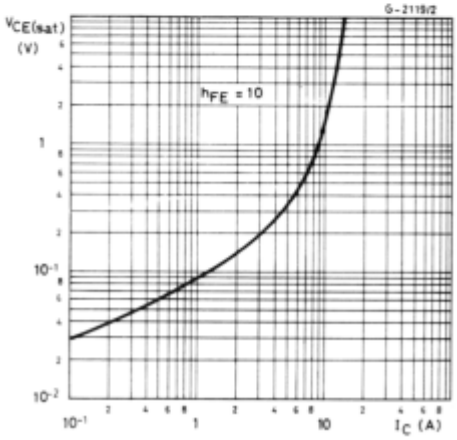
DC current gain



DC transconductance



Collector-emitter saturation voltage



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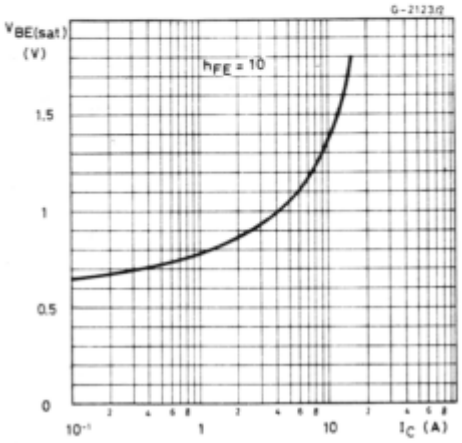
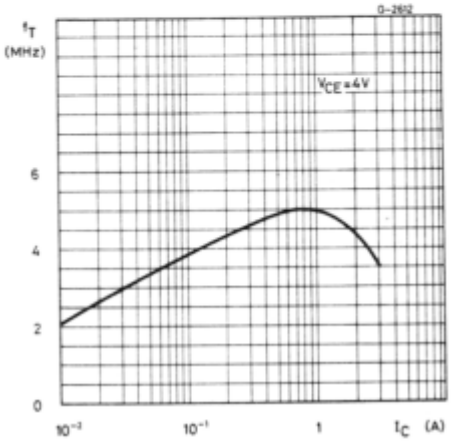
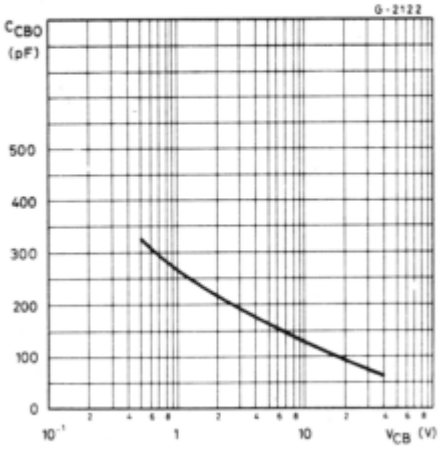
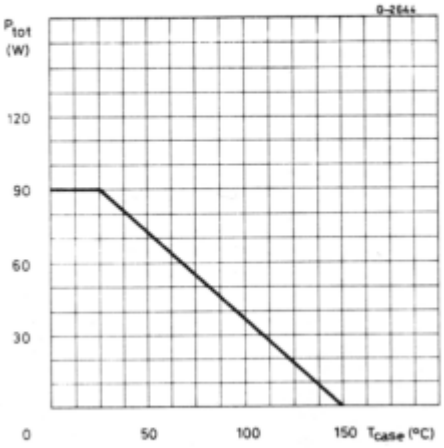
Base-emitter saturation voltage



Transition frequency



Collector-base capacitance



Power rating chart