

BD909/911 BD910/912

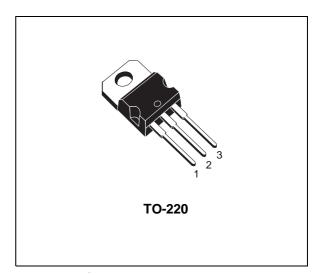
COMPLEMENTARY SILICON POWER TRANSISTORS

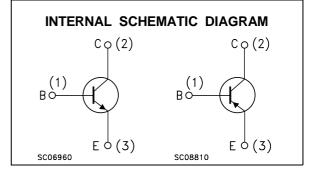
 STMicroelectronics PREFERRED SALESTYPES

DESCRIPTION

The BD909 and BD911 are silicon Epitaxial-Base NPN power transistors mounted in Jedec TO-220 plastic package. They are intented for use in power linear and switching applications.

The complementary PNP types are BD910 and BD912 respectively.





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Va	Unit	
		NPN	BD909	BD911	
		PNP	BD910	BD912	
V _{CBO}	Collector-Base Voltage (I _E = 0)	80	100	V	
V _{CEO}	Collector-Emitter Voltage $(I_B = 0)$		80	100	V
V_{EBO}	Emitter-Base Voltage $(I_C = 0)$		5		V
I_E, I_C	Collector Current		15		А
Ι _Β	Base Current	5		А	
Ptot	Total Dissipation at $T_c \le 25 \ ^{\circ}C$	90		W	
T _{stg}	Storage Temperature	-65 to 150		°C	
Tj	Max. Operating Junction Temperature	1:	°C		

For PNP types voltage and current values are negative.

October 1999

THERMAL DATA

R _{thj-case} Thermal Resistance Junction-case	Max	1.4	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

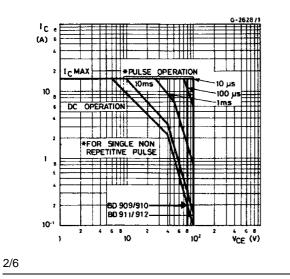
Symbol	Parameter	Test C	Min.	Тур.	Max.	Unit	
I _{СВО}	Collector Cut-off Current (I _E = 0)	for BD909/910 for BD911/912 T _{case} = 150 °C for BD909/910 for BD911/912	V _{CB} = 80 V V _{CB} = 100 V V _{CB} = 80 V V _{CB} = 100 V			500 500 5 5	μΑ μΑ mA mA
I _{CEO}	Collector Cut-off Current ($I_B = 0$)	for BD909/910 for BD911/912	V _{CE} = 40 V V _{CE} = 50 V			1 1	mA mA
I _{EBO}	Emitter Cut-off Current $(I_{C} = 0)$	V _{EB} = 5 V				1	mA
$V_{CEO(sus)^*}$	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 100 mA	for BD909/910 for BD911/912	80 100			V V
V _{CE(sat)} *	Collector-Emitter Saturation Voltage	$I_{\rm C} = 5 \text{ A}$ $I_{\rm C} = 10 \text{ A}$	I _B = 0.5 A I _B = 2.5 A			1 3	V V
$V_{BE(sat)^*}$	Base-Emitter Saturation Voltage	I _C = 10 A	I _B = 2.5 A			2.5	V
$V_{BE}*$	Base-Emitter Voltage	$I_{\rm C} = 5$ A	$V_{CE} = 4 V$			1.5	V
h _{FE} *	DC Current Gain	$I_{C} = 0.5 A$ $I_{C} = 5 A$ $I_{C} = 10 A$	$V_{CE} = 4 V$ $V_{CE} = 4 V$ $V_{CE} = 4 V$	40 15 5		250 150	
f _T	Transition frequency	I _C = 0.5 A	$V_{CE} = 4 V$	3			MHz

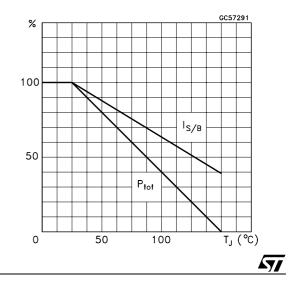
* Pulsed: Pulse duration = 300 µs, duty cycle 1.5 %

For PNP types voltage and current values are negative.

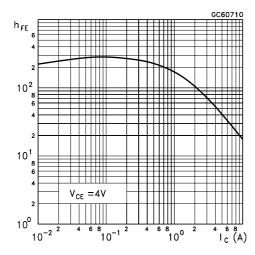
Safe Operating Area

Derating Curves

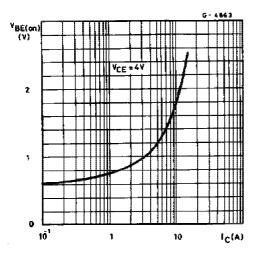




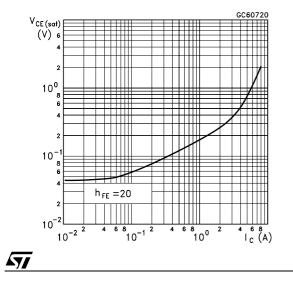
DC Current Gain (NPN type)



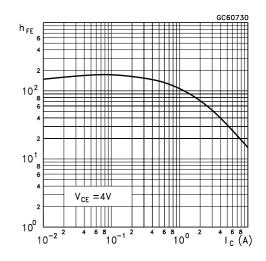
DC Transconductance (NPN type)



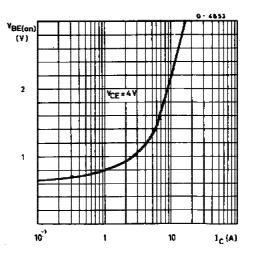
Collector-Emitter Saturation Voltage (NPN type)



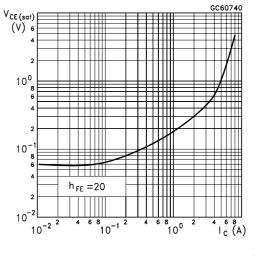
DC Current Gain (PNP type)



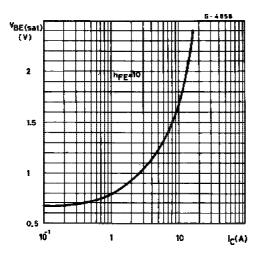
DC Transconductance (PNP type)



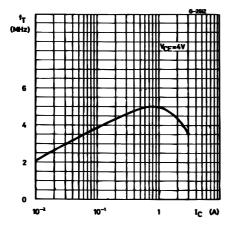
Collector-Emitter Saturation Voltage (PNP type)



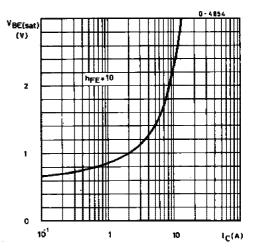
Base-Emitter Saturation Voltage (NPN type)



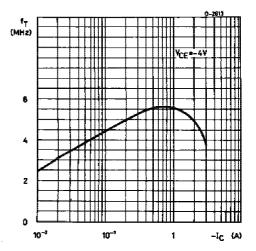
Transition Frequency (NPN type)



Base-Emitter Saturation Voltage (PNP type)



Transition Frequency (PNP type)

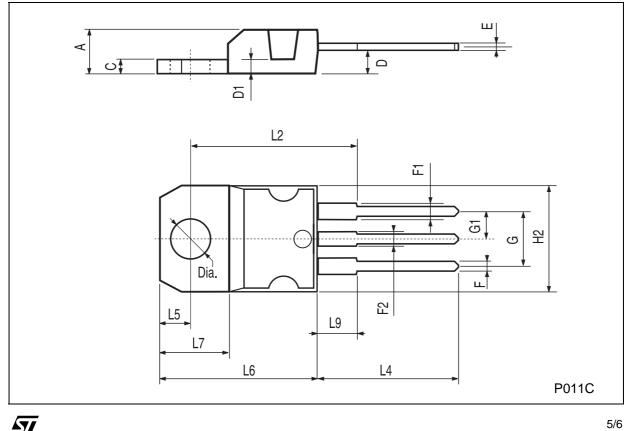


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DIM.		mm			inch	
Divi.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
С	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151

TO-220 MECHANICAL DATA



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