

SPTECH Silicon NPN Power Transistor

BD311

DESCRIPTION

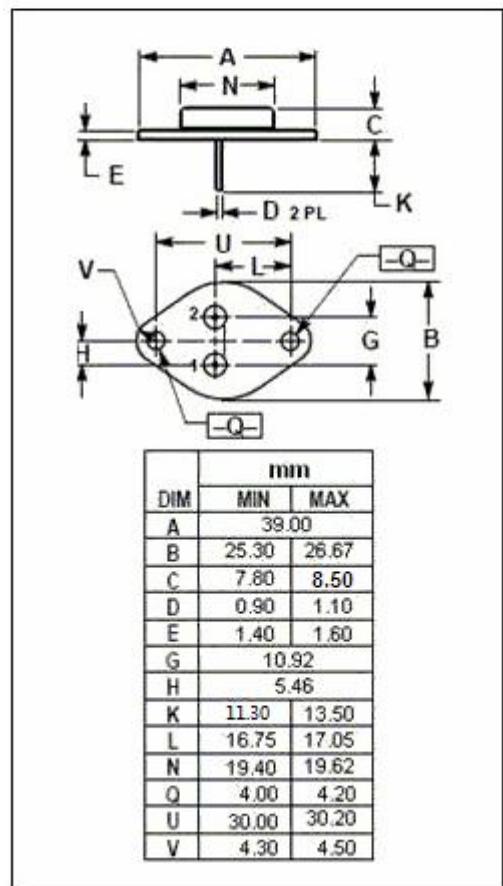
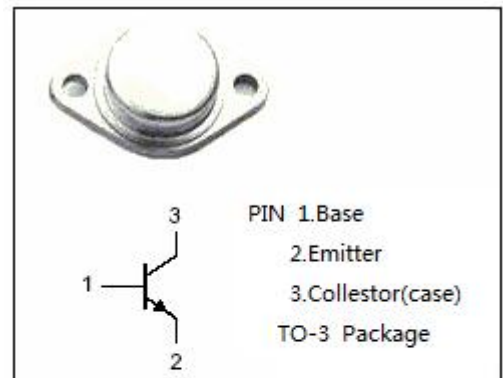
- Excellent Safe Operating Area
- DC Current Gain- $h_{FE} = 25(\text{Min.}) @ I_C = 5A$
- Collector-Emitter Saturation Voltage-
: $V_{CE(sat)} = 1.0 V(\text{Max}) @ I_C = 5A$
- Complement to Type BD312

APPLICATIONS

- Designed for high quality amplifiers operating up to 60 watts into 4 ohm load.

ABSOLUTE MAXIMUM RATINGS($T_a = 25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	10	A
I_{CM}	Collector Current-Peak	20	A
I_B	Base Current-Continuous	4	A
P_C	Collector Power Dissipation@ $T_C = 25^\circ\text{C}$	115	W
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~200	$^\circ\text{C}$
SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.52	$^\circ\text{C/W}$



SPTECH Silicon NPN Power Transistor

BD311

ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=30\text{mA}$; $I_B=0$	60		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C= 5\text{A}$; $I_B= 0.5\text{A}$		1.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C= 5\text{A}$; $I_B= 0.5\text{A}$		1.8	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C= 5\text{A}$; $V_{CE}= 4\text{V}$		1.5	V
I_{CBO}	Collector Cutoff Current	$V_{CB}= 60\text{V}$; $I_B=0$		1.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}= 7.0\text{V}$; $I_C=0$		1.0	mA
h_{FE-1}	DC Current Gain	$I_C= 5\text{A}$; $V_{CE}= 4\text{V}$	25		
h_{FE-2}	DC Current Gain	$I_C= 10\text{A}$; $V_{CE}= 4\text{V}$	5		
$I_{S/b}$	Second Breakdown Collector Current with Base Forward Biased	$V_{CE}= 39\text{V}$, $t= 0.5\text{s}$ $V_{CE}= 50\text{V}$, $t= 0.5\text{s}$	2.95 0.60		A
f_T	Current Gain-Bandwidth Product	$I_C= 0.5\text{A}$; $V_{CE}= 10\text{V}$; $f=1.0\text{MHz}$	4		MHz