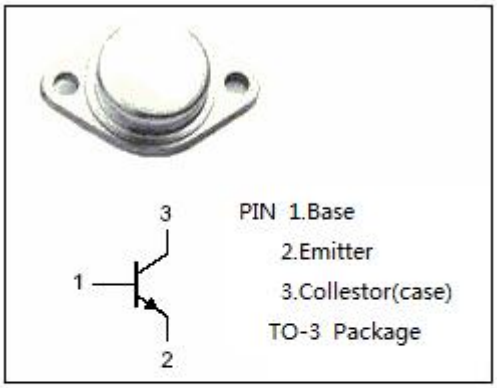
SPTECH Silicon NPN Power Transistors 2N5302

DESCRIPTION

- Low Collector Saturation Voltage-
  : $V_{CE(sat)}$= 0.75V(Max.)@ I_C= 10A
- Wide Area of Safe Operation
- Complement to Type 2N4399



APPLICATIONS

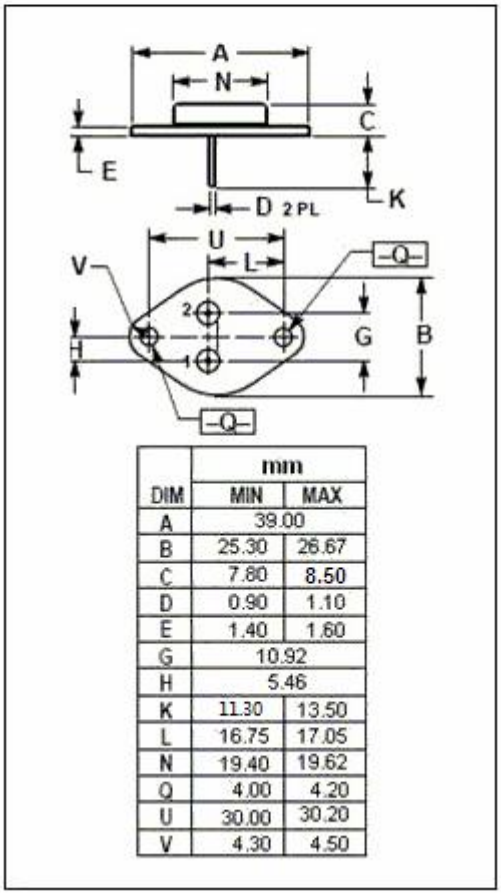
- Designed for use in power amplifier and switching circuits applications.

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

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	30	A
I_B	Base Current-Continuous	7.5	A
P_C	Collector Power Dissipation@T_C=25℃	200	W
T_J	Junction Temperature	200	℃
T_{stg}	Storage Temperature	-65~200	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}a}$	Thermal Resistance,Junction to Ambient	34	℃/W
$R_{th\ j\text{-}c}$	Thermal Resistance,Junction to Case	0.875	℃/W



DIM	mm MIN	MAX
A	39.00	
B	25.30	26.67
C	7.80	8.50
D	0.90	1.10
E	1.40	1.60
G	10.92	
H	5.46	
K	11.30	13.50
L	16.75	17.05
N	19.40	19.62
Q	4.00	4.20
U	30.00	30.20
V	4.30	4.50

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ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	I_C= 50mA ; I_B= 0	60		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	I_C= 10A; I_B= 1A		0.75	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	I_C= 20A; I_B= 2A		2.0	V
$V_{CE(sat)-3}$	Collector-Emitter Saturation Voltage	I_C= 30A; I_B= 6A		3.0	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	I_C= 10A; I_B= 1A		1.7	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	I_C= 15A; I_B= 1.5A		1.8	V
$V_{BE(sat)-3}$	Base-Emitter Saturation Voltage	I_C= 20A; I_B= 2A		2.5	V
$V_{BE(on)-1}$	Base-Emitter On Voltage	I_C= 15A; V_{CE}= 2V		1.7	V
$V_{BE(on)-2}$	Base-Emitter On Voltage	I_C= 30A; V_{CE}= 4V		3.0	V
I_{CEO}	Collector Cutoff Current	V_{CE}= 60V; I_B= 0		5.0	mA
I_{CBO}	Collector Cutoff Current	V_{CB}= 60V; I_E= 0		1.0	mA
I_{CEX}	Collector Cutoff Current	V_{CE}= 60V; $V_{BE(off)}$= 1.5V V_{CE}= 60V; $V_{BE(off)}$= 1.5V,T_C=150℃		1.0 10	mA
I_{EBO}	Emitter Cutoff Current	V_{EB}= 5V; I_C= 0		5.0	mA
h_{FE-1}	DC Current Gain	I_C= 1A; V_{CE}= 2V	40		
h_{FE-2}	DC Current Gain	I_C= 15A; V_{CE}= 2V	15	60	
h_{FE-3}	DC Current Gain	I_C= 30A; V_{CE}= 4V	5		
f_T	Current-Gain—Bandwidth Product	I_C= 1A; V_{CE}= 10V ;f_{test}= 1.0MHz	2		MHz
Switching Times					
t_r	Rise Time	V_{CC}= 30V; I_C= 10A; I_{B1}= -I_{B2}= 1A		1.0	μs
t_s	Storage Time			2.0	μs
t_f	Fall Time			1.0	μs