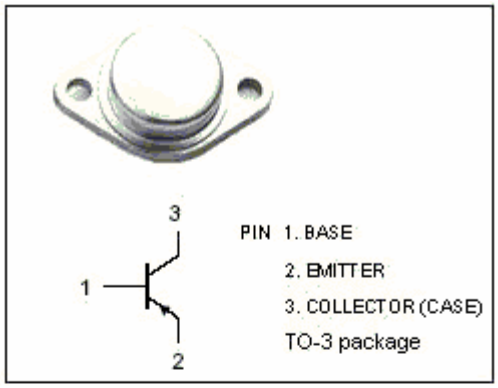
isc Silicon PNP Power Transistors 2N4399

DESCRIPTION

- Low Collector Saturation Voltage-
  : $V_{CE(sat)}$= -1.0V(Max.)@ I_C= -15A
- Wide Area of Safe Operation
- Complement to Type 2N5302

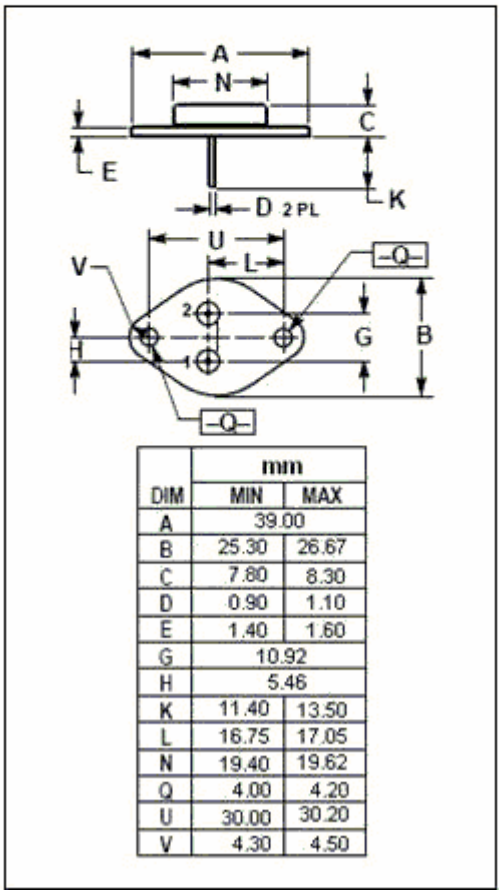
APPLICATIONS

- Designed for use in power amplifier and switching circuits.



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_{CM}	Collector Current-Peak	-50	A
I_B	Base Current-Continuous	-7.5	A
I_{BM}	Base Current-Peak	-15	A
P_C	Collector Power Dissipation@T_a=25℃	5	W
	Collector Power Dissipation@T_C=25℃	200	
T_J	Junction Temperature	200	℃
T_{stg}	Storage Temperature	-65~200	℃



DIM	mm MIN	MAX
A	39.00	
B	25.30	26.67
C	7.80	8.30
D	0.90	1.10
E	1.40	1.60
G	10.92	
H	5.46	
K	11.40	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

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}a}$	Thermal Resistance,Junction to Ambient	35	℃/W
$R_{th\ j\text{-}c}$	Thermal Resistance,Junction to Case	0.875	℃/W

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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= -200mA ; 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= -15A; I_B= -1.5A		-1.0	V
$V_{CE(sat)-3}$	Collector-Emitter Saturation Voltage	I_C= -20A; I_B= -2A		-2.0	V
$V_{CE(sat)-4}$	Collector-Emitter Saturation Voltage	I_C= -30A; I_B= -6A		-4.0	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	I_C= -10A; I_B= -1A		-1.6	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	I_C= -15A; I_B= -1.5A		-1.85	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}= -30V; $V_{BE(off)}$= -1.5V,T_C=150℃		-5.0 -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	4		MHz
Switching Times					
t_r	Rise Time	V_{CC}= -30V; I_C= -10A; I_{B1}= -I_{B2}= -1A		0.4	μs
t_s	Storage Time			1.5	μs
t_f	Fall Time			0.6	μs