

isc Silicon NPN Power Transistors

2N5302

DESCRIPTION

- Low Collector Saturation Voltage-
: $V_{CE(sat)} = 0.75V(\text{Max.}) @ I_C = 10A$
- Wide Area of Safe Operation
- Complement to Type 2N4399
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation.

APPLICATIONS

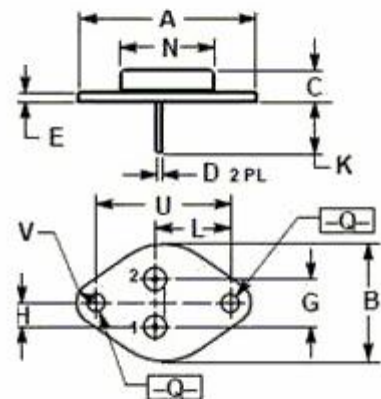
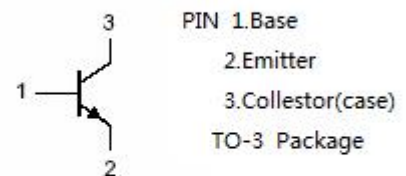
- Designed for use in power amplifier and switching circuits applications.

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

THERMAL CHARACTERISTICS

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



DIM	mm	
	MIN	MAX
A		39.00
B	25.30	26.67
C	7.60	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

isc Silicon NPN Power Transistors**2N5302****ELECTRICAL CHARACTERISTICS****T_C=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V _{CE(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°C		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