

isc Silicon NPN Power Transistor
BUY21
DESCRIPTION

- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 180V(\text{Min.})$
- Excellent Safe Operating Area
- High Speed Switching
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

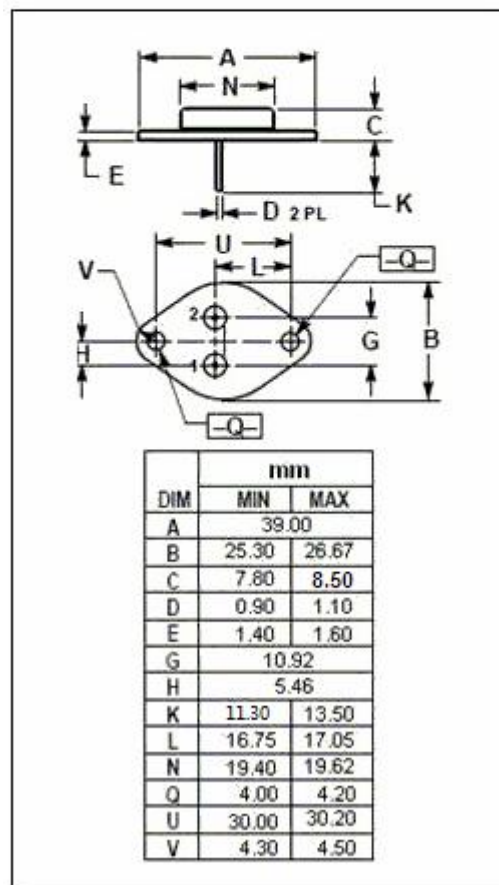
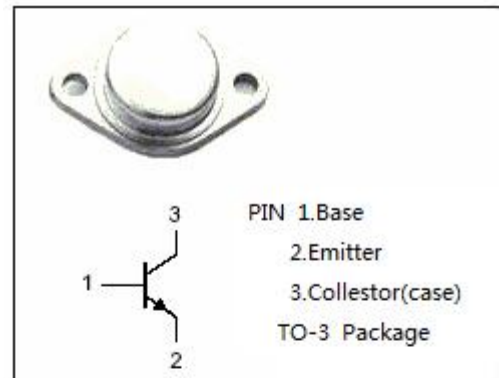
- Designed for use in switching-control amplifiers, power gates, switching regulators, converters, and inverter.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	300	V
V_{CEO}	Collector-Emitter Voltage	180	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	10	A
I_{CM}	Collector Current-Peak	15	A
I_B	Base Current-Continuous	2	A
P_T	Total Power Dissipation @ $T_C \leq 25^\circ\text{C}$	85	W
T_J	Junction Temperature	175	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~175	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.25	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V _{CE0(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 30mA ; I _B = 0	180			V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 5A; I _B = 0.5A			0.5	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 10A; I _B = 1A			1.5	V
V _{BE(sat)-1}	Base-Emitter Saturation Voltage	I _C = 5A; I _B = 0.5A			1.2	V
V _{BE(sat)-2}	Base-Emitter Saturation Voltage	I _C = 10A; I _B = 1A			1.5	V
I _{CBO}	Collector Cutoff Current	V _{CB} =300V; I _E =0			0.1	mA
I _{EBO}	Emitter Cutoff current	V _{EB} =6V; I _C =0			0.1	mA
h _{FE-1}	DC Current Gain	I _C = 1A ; V _{CE} = 5V	60			
h _{FE-2}	DC Current Gain	I _C = 2.5A ; V _{CE} = 5V	20		300	
h _{FE-3}	DC Current Gain	I _C = 10A ; V _{CE} = 5V	10			
f _T	Current-Gain—Bandwidth Product	I _C = 0.5 A; V _{CE} = 10V; f _{test} = 1MHz	10			MHz

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