

isc Silicon NPN Power Transistor

BDY90

DESCRIPTION

- High DC Current Gain-
: $h_{FE} = 30-120 @ I_C = 5A$
- Excellent Safe Operating Area
- High Current Capability

APPLICATIONS

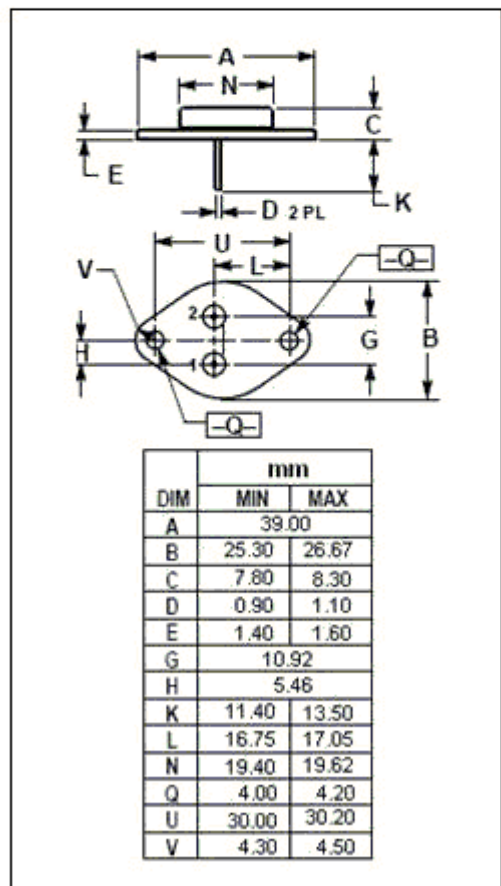
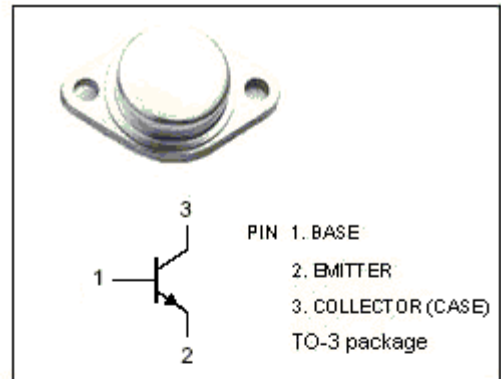
- Designed for use in switching-control amplifiers, power gates, switching regulators, converters, and inverters.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	120	V
V_{CEV}	Collector-Emitter Voltage $V_{BE} = -1.5V$	120	V
V_{CEO}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	10	A
I_{CM}	Collector Current-Peak	15	A
I_B	Base Current-Continuous	2	A
P_C	Collector Power Dissipation @ $T_C \leq 25^{\circ}C$	60	W
T_J	Junction Temperature	175	$^{\circ}C$
T_{stg}	Storage Temperature Range	-65~175	$^{\circ}C$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	2.5	$^{\circ}C/W$



isc Silicon NPN Power Transistor

BDY90

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 = 100mA ; I _B = 0	120			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} =120V; I _E =0			1.0	mA
I _{CEV}	Collector Cutoff Current	V _{CE} =120V; V _{BE} =-1.5V V _{CE} =120V; V _{BE} =-1.5V; T _C =150°C			1.0 3.0	mA
I _{EBO}	Emitter Cutoff current	V _{EB} =6V; I _C =0			1.0	mA
h _{FE-1}	DC Current Gain	I _C = 1A ; V _{CE} = 2V	30			
h _{FE-2}	DC Current Gain	I _C = 5A ; V _{CE} = 5V	30		120	
h _{FE-3}	DC Current Gain	I _C = 10A ; V _{CE} = 5V	20			
f _T	Current-Gain—Bandwidth Product	I _C = 0.5 A; V _{CE} = 5V; f _{test} = 5MHz		70		MHz

Switching Times

t _{on}	Turn-On Time	I _C = 5A; I _{B1} = -I _{B2} = 0.5A, V _{CC} =30V			0.35	μs
t _{stg}	Storage Time				1.3	μs
t _f	Fall Time				0.2	μs