

SPTECH Silicon NPN Power Transistor

BUS48

DESCRIPTION

- High Voltage Capability
- High Current Capability
- Fast Switching Speed

APPLICATIONS

Designed for high-voltage,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line-operated switchmode applications such as:

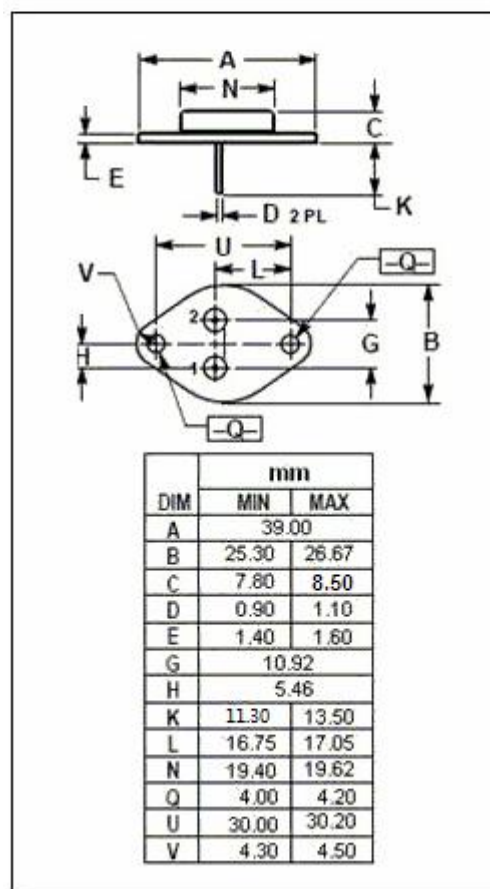
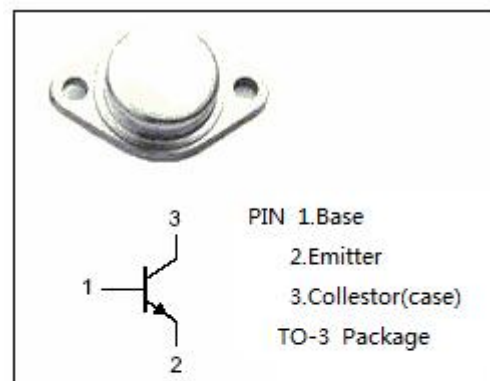
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

Absolute maximum ratings($T_a=25^{\circ}\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage ($V_{BE} = -1.5\text{V}$)	850	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	15	A
I_{CM}	Collector Current-Peak	30	A
I_B	Base Current-Continuous	5	A
I_{BM}	Base Current-peak	20	A
P_C	Collector Power Dissipation @ $T_C=25^{\circ}\text{C}$	175	W
T_j	Junction Temperature	200	$^{\circ}\text{C}$
T_{stg}	Storage Temperature Range	-65~200	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.0	$^{\circ}\text{C/W}$



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ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=50\text{mA}; I_B=0$	400		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=50\text{mA}; I_C=0$	7		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=2\text{A}$ $I_C=10\text{A}; I_B=2\text{A}; T_C=100^{\circ}\text{C}$		1.5 2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=15\text{A}; I_B=3\text{A}$		5.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=2\text{A}$ $I_C=10\text{A}; I_B=2\text{A}; T_C=100^{\circ}\text{C}$		1.6 1.6	V
I_{CER}	Collector Cutoff Current	$V_{CE}=\text{rated } V_{CE}; R_{BE}=10\Omega$ $V_{CE}=\text{rated } V_{CE}; R_{BE}=10\Omega; T_C=125^{\circ}\text{C}$		0.5 3.0	mA
I_{CEV}	Collector Cutoff Current	$V_{CE}=\text{rated } V_{CE}; V_{BE(off)}=1.5\text{V}$ $V_{CE}=\text{rated } V_{CE}; V_{BE(off)}=1.5\text{V}; T_C=125^{\circ}\text{C}$		0.2 2	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$		0.1	mA
h_{FE}	DC Current Gain	$I_C=10\text{A}; V_{CE}=5\text{V}$	8		
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V}, f_{\text{test}}=1\text{MHz}$		350	pF

Switching times Resistive Load

t_{on}	Turn-on Time	$I_C=10\text{A}; I_{B1}=-I_{B2}=2\text{A}; V_{CC}=250\text{V}$ $V_{BE(off)}=5\text{V}, \text{Duty Cycle} \leq 2\%$		0.9	μs
t_s	Storage Time			2.0	μs
t_f	Fall Time			0.4	μs