

DESCRIPTION

- High Speed- $t_f = 0.5 \mu s$ (Max)
- Low Saturation Voltage-
 $V_{CE(sat)} \leq 2.5V @ I_C = 20A$

APPLICATIONS

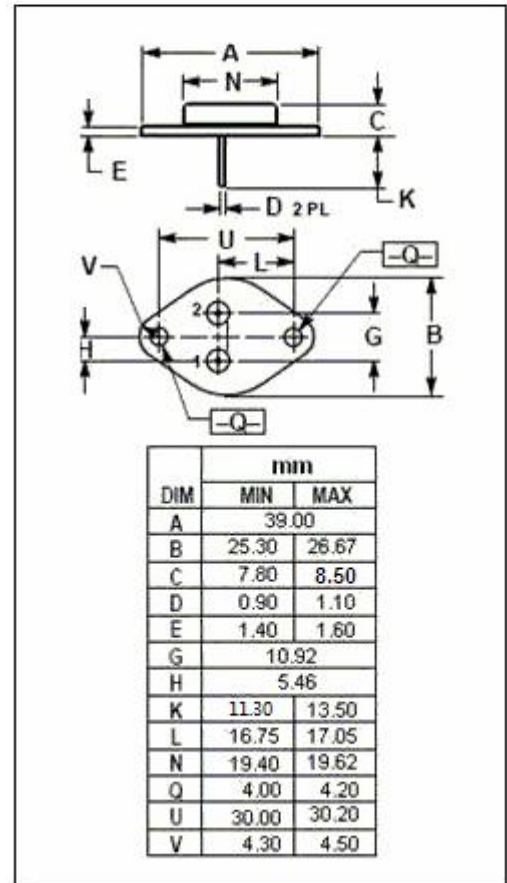
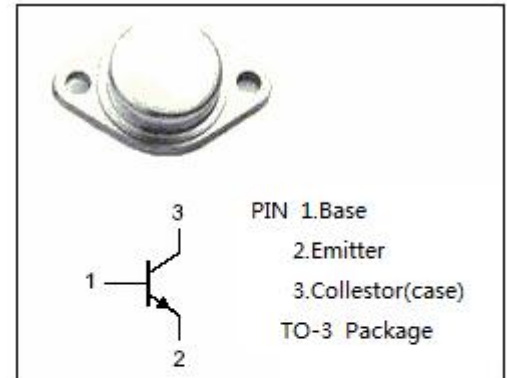
- Designed for use in switching regulators, inverters, wide-band amplifiers and power oscillators in industrial and commercial applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage	150	V
V_{CBO}	Collector- Base Voltage	150	V
V_{CEO}	Collector-Emitter Voltage	90	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	20	A
I_{CM}	Collector Current-Peak	30	A
I_B	Base Current-Continuous	5	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ C$	140	W
T_J	Junction Temperature	200	$^\circ C$
T_{stg}	Storage Temperature Range	-65~200	$^\circ C$

THERMAL CHARACTERISTICS

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



SPTECH Silicon NPN Power Transistor

2N5038

ELECTRICAL CHARACTERISTICS

T_j=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V _{CEQ(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 50mA ; I _B = 0	90		V
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 20A; I _B = 5.0A		2.5	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 20A; I _B = 5.0A		3.3	V
I _{CEX}	Collector Cutoff Current	V _{CE} = 140V; V _{BE(off)} =1.5V V _{CE} = 100V; V _{BE(off)} =1.5V ; T _C =150°C		0.5 10	mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 5.0V; I _C = 0 V _{EB} = 7.0V; I _C = 0		5 50	mA
h _{FE}	DC Current Gain	I _C = 12A ; V _{CE} = 5V	20	100	

Switching times

t _r	Rise Time	V _{CC} = 30V, I _C = 12A , I _{B1} = -I _{B2} = 1.2A,		0.5	μ s
t _s	Storage Time			1.5	μ s
t _f	Fall Time			0.5	μ s