

isc Silicon NPN Power Transistors

2N6678

DESCRIPTION

- High Voltage Capability
- Fast Switching Speed
- Low Saturation Voltage
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

Designed for high voltage switching applications such as:

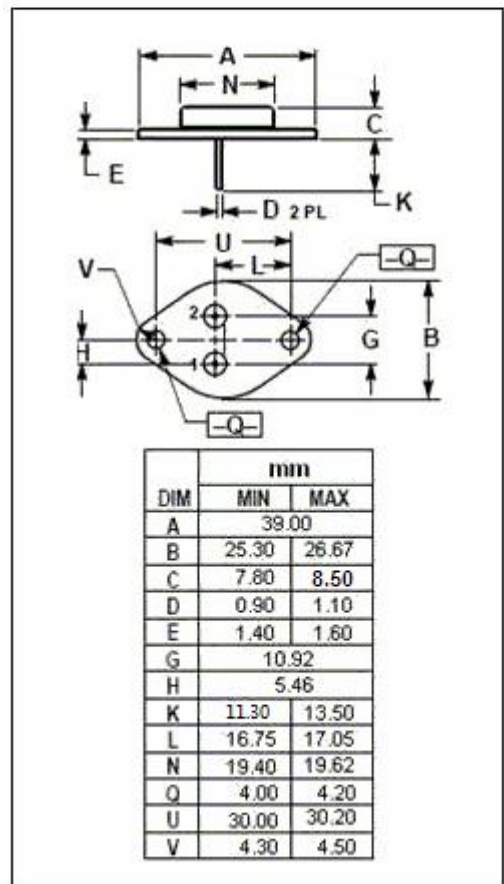
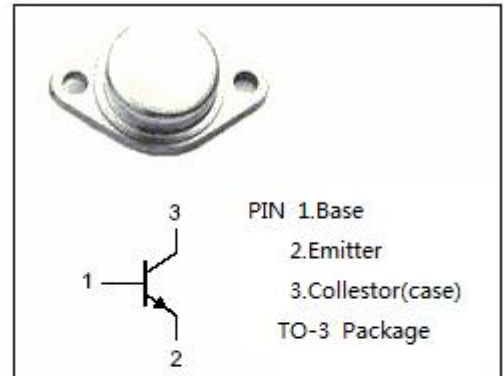
- Off-line power supplies
- Converter circuits
- PWM regulators

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage	650	V
V_{CEX}	Collector-Emitter Voltage	450	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	8.0	V
I_C	Collector Current-Continuous	15	A
I_{CM}	Collector Current-Peak	20	A
I_B	Base Current-Continuous	5.0	A
P_C	Collector Power Dissipation@ $T_c=25^\circ\text{C}$	175	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~150	$^\circ\text{C}$

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
$V_{CEQ(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=30\text{mA}$; $I_B=0$	400		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=15\text{A}$; $I_B=3.0\text{A}$		1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=15\text{A}$; $I_B=3.0\text{A}$		1.5	V
I_{EBO}	Emitter Cutoff Current	$V_{EB}=8.0\text{V}$; $I_C=0$		2.0	mA
I_{CBO}	Collector Base Cutoff Current	$V_{CB}=650\text{V}$; $I_E=0$ $V_{CB}=650\text{V}$; $I_E=0$; $T_C=100^{\circ}\text{C}$		0.1 1	mA
h_{FE}	DC Current Gain	$I_C=15\text{A}$; $V_{CE}=3\text{V}$	8.0		
f_T	Current Gain-Bandwidth Product	$I_C=1.0\text{A}$; $V_{CE}=10\text{V}$; $f_{test}=5.0\text{MHz}$	3.0		MHz
C_{OB}	Output Capacitance	$I_E=0$; $V_{CB}=10\text{V}$; $f_{test}=0.1\text{MHz}$		500	pF

Switching times

t_d	Delay Time	$I_C=15\text{A}$, $V_{CC}=200\text{V}$, $I_{B1}=-I_{B2}=3\text{A}$, $t_p=20\mu\text{s}$, Duty Cycle $\leq 2.0\%$ $V_{BB}=6\text{V}$, $R_L=13.5\Omega$		0.2	μs
t_r	Rise Time			0.6	μs
t_s	Storage Time			2.5	μs
t_f	Fall Time			0.6	μs

Pulse test $PW \leq 300\mu\text{s}$, duty cycle $\leq 2\%$

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