

isc Silicon NPN Power Transistor

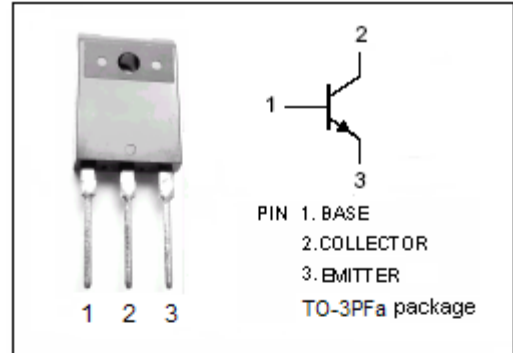
2SC3981

DESCRIPTION

- Collector-Base Breakdown Voltage-
: $V_{(BR)CBO} = 900V(\text{Min.})$
- Wide Area of Safe Operation
- High Speed Switching

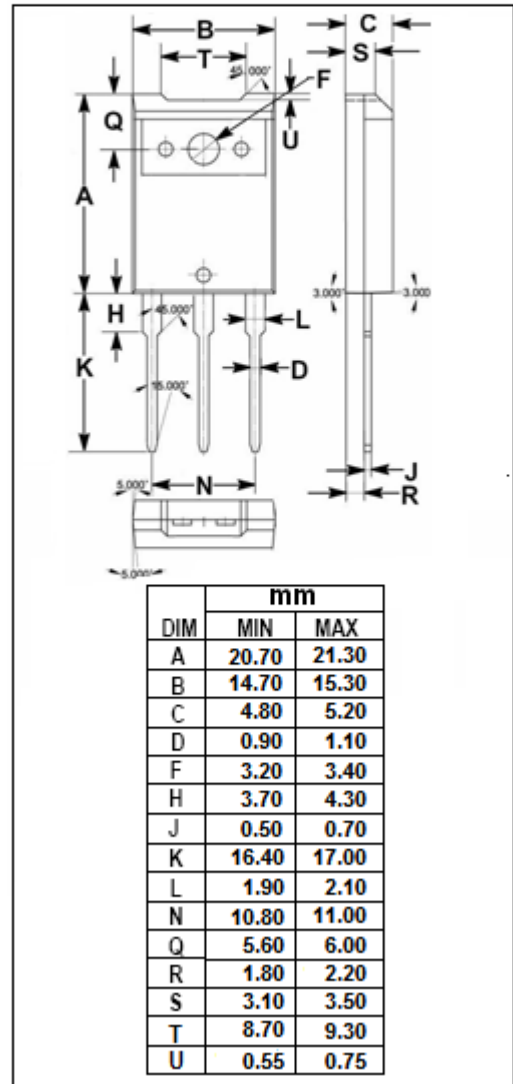
APPLICATIONS

- Designed for high speed switching applications.



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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	900	V
V_{CES}	Collector-Emitter Voltage	900	V
V_{CEO}	Collector-Emitter Voltage	800	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	5	A
I_{CM}	Collector Current-Peak	10	A
I_B	Base Current-Continuous	3	A
P_C	Collector Power Dissipation @ $T_a=25^{\circ}C$	3	W
	Collector Power Dissipation @ $T_C=25^{\circ}C$	80	
T_j	Junction Temperature	150	$^{\circ}C$
T_{stg}	Storage Temperature Range	-55~150	$^{\circ}C$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=10\text{mA}; I_B=0$	800			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=0.6\text{A}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=0.6\text{A}$			1.5	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=900\text{V}; I_E=0$			50	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=7\text{V}; I_C=0$			50	μA
h_{FE-1}	DC Current Gain	$I_C=0.1\text{A}; V_{CE}=5\text{V}$	8			
h_{FE-2}	DC Current Gain	$I_C=3\text{A}; V_{CE}=5\text{V}$	6			
f_T	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=5\text{V}; f=1\text{MHz}$		15		MHz

Switching Times

t_{on}	Turn-on Time	$I_C=3\text{A}; I_{B1}=0.6\text{A}; I_{B2}=-1.2\text{A}; V_{CC}=250\text{V}$			0.7	μs
t_s	Storage Time				2.5	μs
t_f	Fall Time				0.3	μs