

INCHANGE Semiconductor

isc Product Specification

isc Silicon NPN Power Transistor

BUX39

DESCRIPTION

- Low Collector Saturation Voltage-
- High Switching Speed
- High Current Current Capability

APPLICATIONS

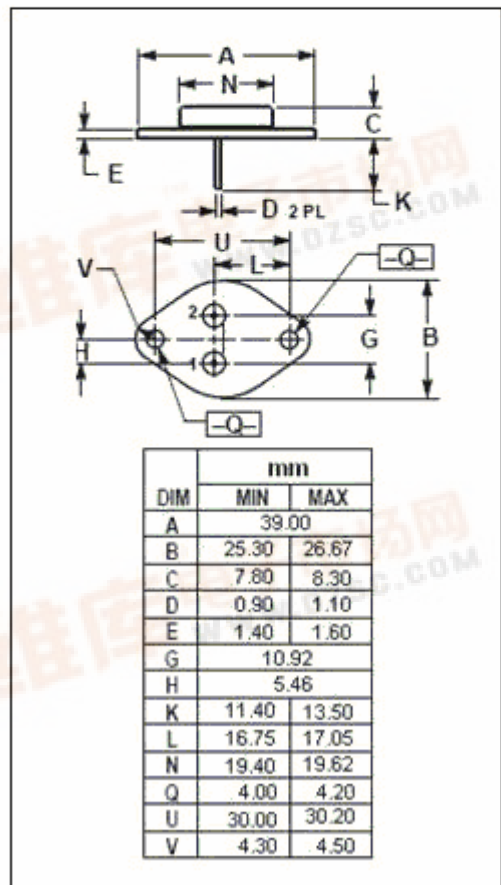
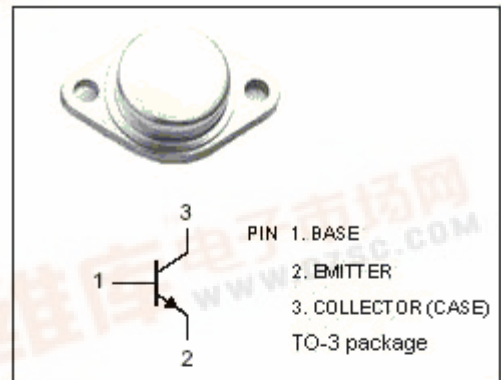
- Designed for switching-control amplifiers, power gates, switching regulators, power switching circuits converters, inverters and control circuits.

Absolute maximum ratings(Ta=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V _{CBO}	Collector-Base Voltage	120	V
V _{CEX}	Collector-Emitter Voltage V _{BE} = -1.5V	120	V
V _{CER}	Collector-Emitter Voltage R _{BE} = 100 Ω	110	V
V _{CEO}	Collector-Emitter Voltage	90	V
V _{EBO}	Emitter-Base Voltage	7	V
I _C	Collector Current-Continuous	30	A
I _{CM}	Collector Current-Peak	40	A
I _B	Base Current-Continuous	6	A
P _C	Collector Power Dissipation @T _C =25°C	120	W
T _j	Junction Temperature	200	°C
T _{stg}	Storage Temperature Range	-65~200	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R _{th j-c}	Thermal Resistance, Junction to Case	1.46	°C/W



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=0.2\text{A}; I_B=0; L=25\text{mH}$	90			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	$I_C=12\text{A}; I_B=1.2\text{A}$			1.2	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=20\text{A}; I_B=2.5\text{A}$			1.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=20\text{A}; I_B=2.5\text{A}$			2.5	V
I_{CEO}	Collector Cutoff Current	$V_{CE}=70\text{V}; I_B=0$			1.0	mA
I_{CEX}	Collector Cutoff Current	$V_{CE}=120\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=120\text{V}; V_{BE}=-1.5\text{V}; T_C=125^{\circ}\text{C}$			1.0 5.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			1.0	mA
h_{FE-1}	DC Current Gain	$I_C=12\text{A}; V_{CE}=4\text{V}$	15		45	
h_{FE-2}	DC Current Gain	$I_C=20\text{A}; V_{CE}=4\text{V}$	8			
f_T	Current-Gain—Bandwidth Product	$I_C=1\text{A}; V_{CE}=15\text{V}$	8			MHz

Switching Times

t_{on}	Turn-on Time	$I_C=20\text{A}; I_{B1}=2.5\text{A}; V_{CC}=30\text{V}$			1.5	μs
t_s	Storage Time	$I_C=20\text{A}; I_{B1}=-I_{B2}=2.5\text{A}; V_{CC}=30\text{V}$			1.0	μs
t_f	Fall Time				0.3	μs