

isc Silicon NPN Power Transistor

BUY57

DESCRIPTION

- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 125V(\text{Min.})$
- Low Collector Saturation Voltage-
: $V_{CE(sat)} = 1.3V @ I_C = 10A$

APPLICATIONS

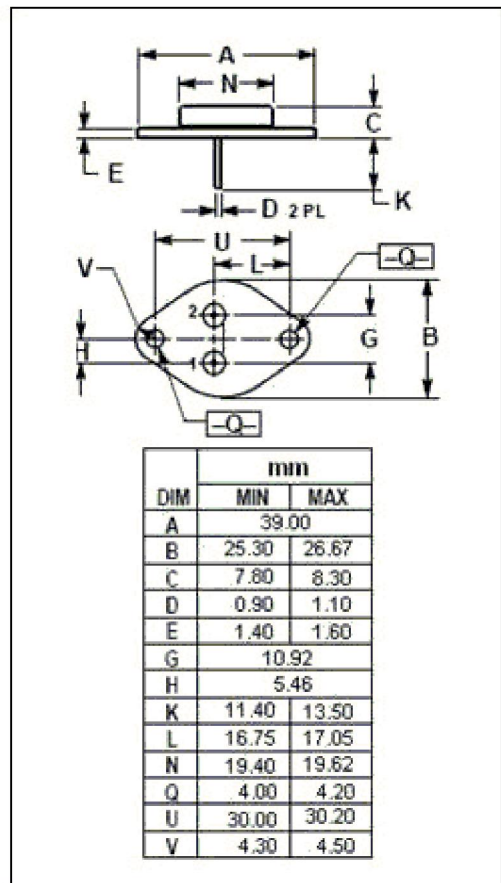
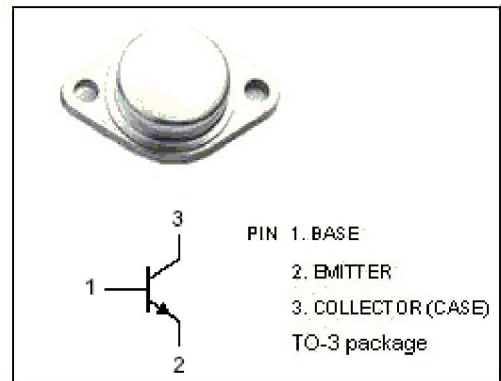
- Designed for general switching applications at higher outputs.

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

SYMBOL	PARAMETER	MAX	UNIT
V_{CBO}	Collector-Base Voltage	150	V
V_{CES}	Collector-Emitter Voltage	150	V
V_{CEO}	Collector-Emitter Voltage	125	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	15	A
I_{CM}	Collector Current-Peak	25	A
I_B	Base Current-Continuous	5	A
P_C	Collector Power Dissipation @ $T_C \leq 25^\circ\text{C}$	117	W
T_j	Junction Temperature	175	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~175	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.28	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=100\text{mA}; I_B=0$	125			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=1.25\text{A}$			1.3	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=1.25\text{A}$			1.5	V
$V_{BE(on)-1}$	Base-Emitter On Voltage	$I_C=10\text{A}; V_{CE}=1.5\text{V}$			1.5	V
$V_{BE(on)-2}$	Base-Emitter On Voltage	$I_C=12\text{A}; V_{CE}=1.5\text{V}$			1.7	V
$V_{BE(on)-2}$	Base-Emitter On Voltage	$I_C=1\text{A}; V_{CE}=1.5\text{V}$			1.0	V
I_{CES}	Collector Cutoff Current	$V_{CE}=150\text{V}; V_{BE}=0$ $V_{CE}=150\text{V}; V_{BE}=0; T_C=125^{\circ}\text{C}$			1.0 10	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=6\text{V}; I_C=0$			1.0	mA
h_{FE-1}	DC Current Gain	$I_C=1\text{A}; V_{CE}=1.5\text{V}$	20			
h_{FE-2}	DC Current Gain	$I_C=10\text{A}; V_{CE}=1.5\text{V}$	12			
h_{FE-3}	DC Current Gain	$I_C=12\text{A}; V_{CE}=1.5\text{V}$	10			
f_T	Current-Gain—Bandwidth Product	$I_C=1\text{A}; V_{CE}=10\text{V}$		20		MHz
C_{OB}	Collector Output Capacitance	$I_E=0; V_{CB}=10\text{V}, f=1\text{MHz}$		330		pF

Switching Times

t_{on}	Turn-On Time	$I_C=10\text{A}; I_{B1}=-I_{B2}=1\text{A}; V_{CC}=60\text{V};$ $t_p=10\mu\text{s}$			1.0	μs
t_s	Storage Time				1.6	μs
t_f	Fall Time				0.6	μs