

isc Silicon Darlington NPN Power Transistor

BU323

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 350V(\text{Min.})$
- High Reliability

APPLICATIONS

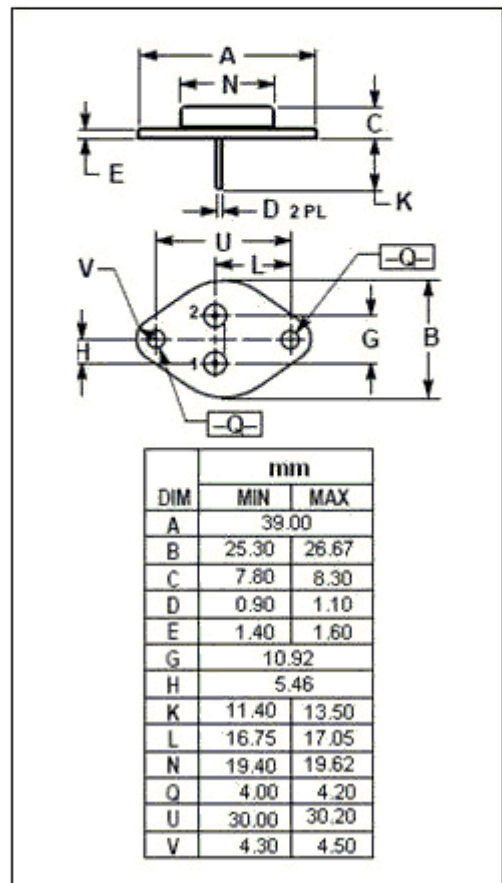
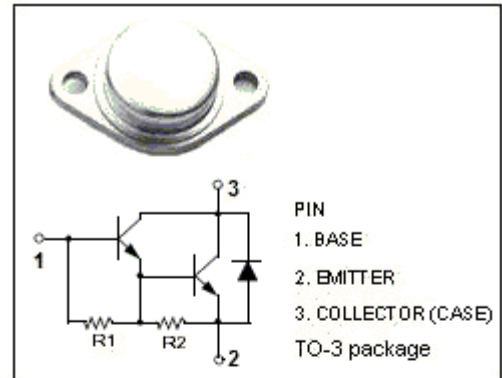
- Automotive ignition
- Switching regulator
- Motor control applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	500	V
V_{CEO}	Collector-Emitter Voltage	350	V
V_{EBO}	Emitter-Base Voltage	8	V
I_C	Collector Current- Continuous	10	A
I_{CM}	Collector Current-Peak	16	A
I_B	Base Current	3	A
P_C	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	175	W
T_j	Junction Temperature	200	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~200	$^\circ\text{C}$

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	TYP	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=0.2\text{A}; I_B=0; L=10\text{mH}$	350			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=60\text{mA}$			1.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=6\text{A}; I_B=120\text{mA}$			1.7	V
$V_{CE(sat)-3}$	Collector-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=300\text{mA}$			2.7	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	$I_C=6\text{A}; I_B=120\text{mA}$			2.2	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=300\text{mA}$			3.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=10\text{A}; V_{CE}=6\text{V}$			2.5	V
I_{CER}	Collector Cutoff Current	$V_{CER}=\text{Rated } V_{CER}; R_{BE}=100\Omega$			1.0	mA
I_{CBO}	Collector Cutoff Current	$V_{CB}=\text{Rated } V_{CBO}; I_E=0$			1.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=6\text{V}; I_C=0$			40	mA
h_{FE-1}	DC Current Gain	$I_C=3\text{A}; V_{CE}=6\text{V}$	300			
h_{FE-2}	DC Current Gain	$I_C=6\text{A}; V_{CE}=6\text{V}$	150		2000	
h_{FE-3}	DC Current Gain	$I_C=10\text{A}; V_{CE}=6\text{V}$	50			
V_{ECF}	C-E Diode Forward Voltage	$I_F=10\text{A}$			3.5	V
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f=100\text{kHz}$		165		pF

Switching Times

t_s	Storage Time	$V_{CC}=12\text{V}; I_C=6\text{A},$ $I_{B1}=-I_{B2}=0.3\text{A}$			15	μs
t_f	Fall Time				15	μs