

Silicon NPN Darlington Power Transistor

BDW39

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
 : $V_{CEO(SUS)} = 45V(\text{Min})$
- High DC Current Gain
 : $h_{FE} = 1000(\text{Min}) @ I_C = 5A$
- Low Collector Saturation Voltage
 : $V_{CE(sat)} = 2.0V(\text{Max.}) @ I_C = 5.0A$
 $= 3.0V(\text{Max.}) @ I_C = 10A$
- Complement to Type BDW44

APPLICATIONS

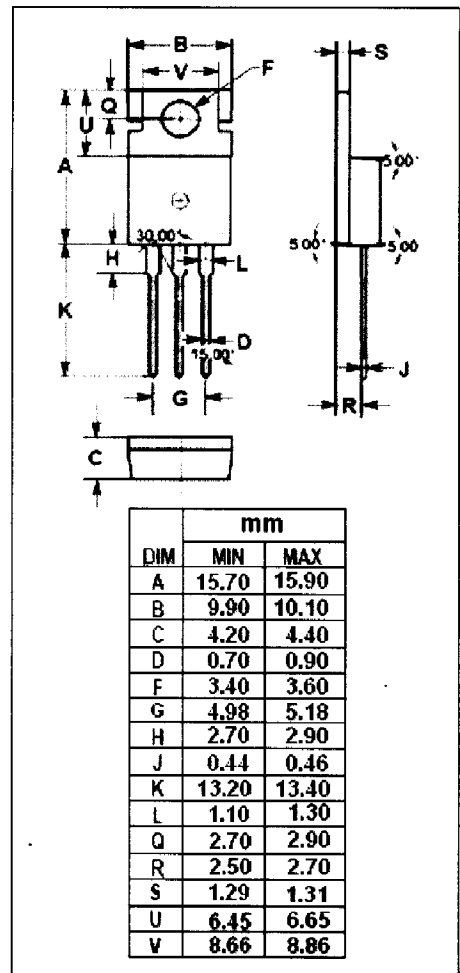
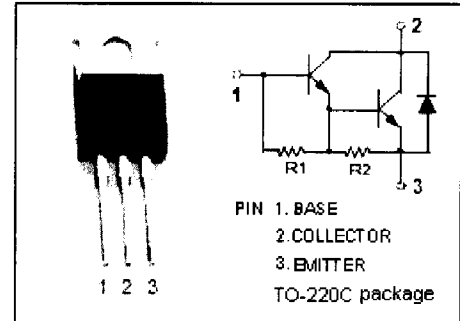
- Designed for general purpose and low speed switching applications

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

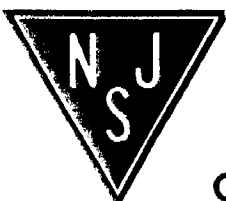
SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	45	V
V_{CEO}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	15	A
I_B	Base Current-Continuous	0.5	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ C$	85	W
T_J	Junction Temperature	150	$^\circ C$
T_{stg}	Storage Temperature Range	-55~150	$^\circ C$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.47	$^\circ C/W$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C= 30\text{mA}; I_B= 0$	45			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C= 5\text{A}; I_B= 10\text{mA}$			2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C= 10\text{A}; I_B= 50\text{mA}$			3.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C= 10\text{A}; V_{CE}= 4\text{V}$			3.0	V
I_{CBO}	Collector Cutoff Current	$V_{CB}= 45\text{V}; I_E= 0$			1.0	mA
I_{CEO}	Collector Cutoff Current	$V_{CE}= 22.5\text{V}; I_B= 0$			2.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}= 5\text{V}; I_C= 0$			2.0	mA
h_{FE-1}	DC Current Gain	$I_C= 5\text{A}; V_{CE}= 4\text{V}$	1000			
h_{FE-2}	DC Current Gain	$I_C= 10\text{A}; V_{CE}= 4\text{V}$	250			
f_T	Current-Gain—Bandwidth Product	$I_C= 3\text{A}; V_{CE}= 3\text{V}; f_{test}= 1\text{MHz}$	4			MHz
C_{OB}	Output Capacitance	$I_E= 0; V_{CB}= 10\text{V}; f_{test}= 0.1\text{MHz}$			200	pF