

isc Silicon NPN Darlington Power Transistor

BDW40

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 60V(\text{Min})$
- 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 BDW45
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

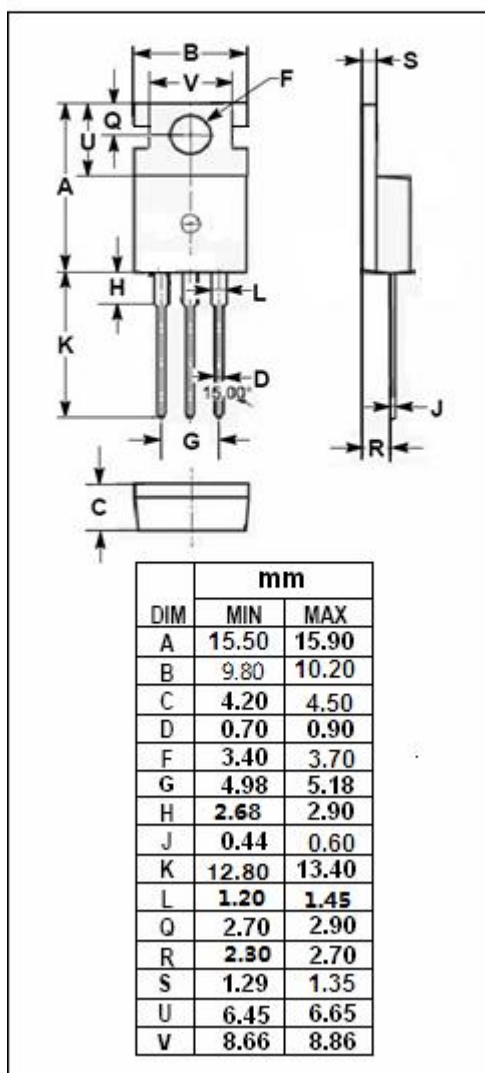
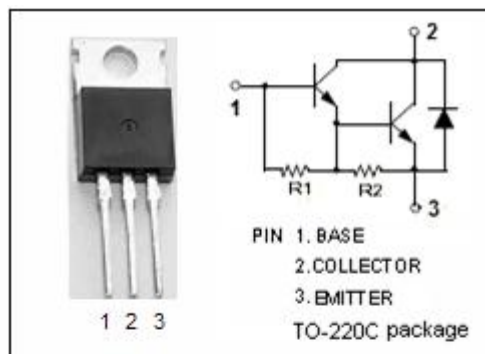
- Designed for general purpose and low speed switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	60	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 @ $T_C = 25^\circ\text{C}$	85	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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



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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	$I_C = 30\text{mA}; I_B = 0$	60			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	$V_{CB} = 60\text{V}; I_E = 0$			1.0	mA
I_{CEO}	Collector Cutoff Current	$V_{CE} = 30\text{V}; I_B = 0$			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

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