

**isc Silicon NPN Darlington Power Transistor**

**BDW40**

**DESCRIPTION**

- Collector-Emitter Sustaining Voltage-  
:  $V_{CE(SUS)} = 60V(\text{Min})$
- 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

**APPLICATIONS**

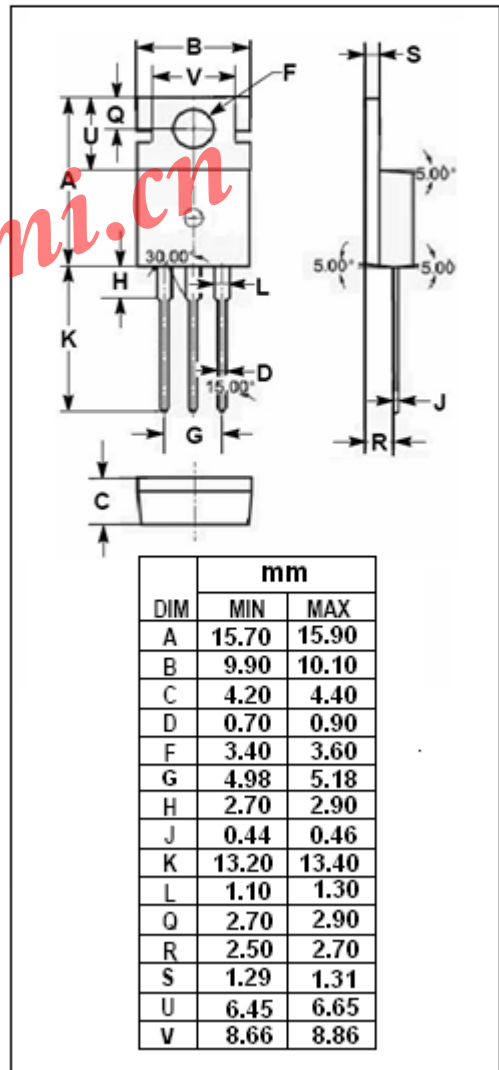
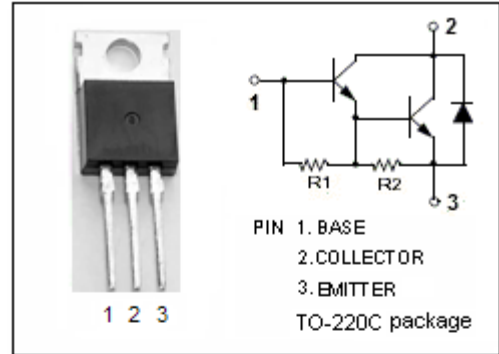
- Designed for general purpose and low speed switching applications

**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	$^\circ\text{C/W}$



**isc Silicon NPN Darlington Power Transistor****BDW40****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