

isc Silicon NPN Darlington Power Transistor
BDW73/A/B/C/D
DESCRIPTION

- Collector Current $-I_C = 8A$
- High DC Current Gain $-h_{FE} = 750(\text{Min.}) @ I_C = 3A$
- Complement to Type BDW74/A/B/C/D
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

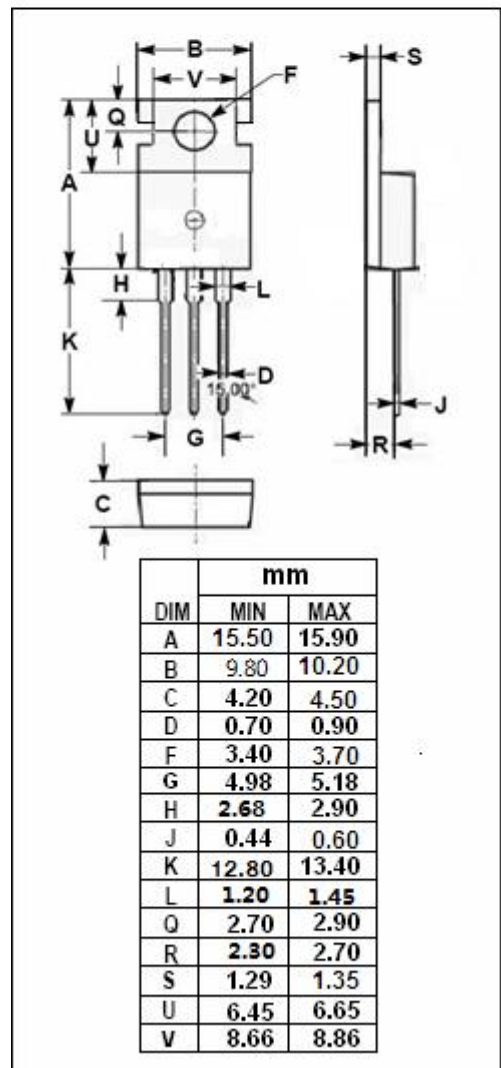
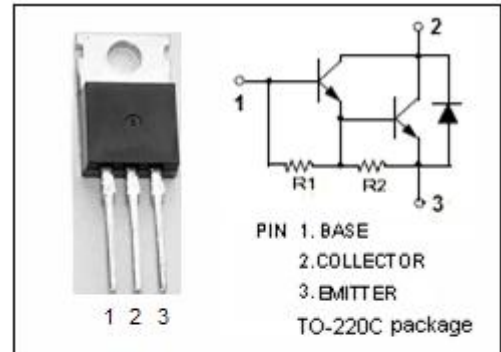
- Designed for audio output stages and general amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CBO}	Collector-Base Voltage	BDW73	45	V
		BDW73A	60	
		BDW73B	80	
		BDW73C	100	
		BDW73D	120	
V_{CEO}	Collector-Emitter Voltage	BDW73	45	V
		BDW73A	60	
		BDW73B	80	
		BDW73C	100	
		BDW73D	120	
V_{EBO}	Emitter-Base Voltage	5	V	
I_C	Collector Current-Continuous	8	A	
I_B	Base Current-Continuous	0.3	A	
P_C	Collector Power Dissipation @ $T_a = 25^\circ\text{C}$	2	W	
	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	80		
T_J	Junction Temperature	150	$^\circ\text{C}$	
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$	

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.56	$^\circ\text{C}/\text{W}$
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	62.5	$^\circ\text{C}/\text{W}$



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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	BDW73	$I_C=30\text{mA}; I_B=0$			45	
		BDW73A				60	
		BDW73B				80	
		BDW73C				100	
		BDW73D				120	
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=12\text{mA}$			2.5	V	
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=8\text{A}; I_B=80\text{mA}$			4.0	V	
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=3\text{A}; V_{CE}=3\text{V}$			2.5	V	
V_{ECF}	C-E Diode Forward Voltage	$I_F=8\text{A}$			3.5	V	
I_{CEO}	Collector Cutoff Current	BDW73	$V_{CE}=30\text{V}; I_B=0$			0.5	
		BDW73A					$V_{CE}=30\text{V}; I_B=0$
		BDW73B					$V_{CE}=40\text{V}; I_B=0$
		BDW73C					$V_{CE}=50\text{V}; I_B=0$
		BDW73D					$V_{CE}=60\text{V}; I_B=0$
I_{CBO}	Collector Cutoff Current	BDW73	$V_{CB}=45\text{V}; I_E=0$ $V_{CB}=45\text{V}; I_E=0; T_J=150^\circ\text{C}$			0.2	
		BDW73A				$V_{CB}=60\text{V}; I_E=0$ $V_{CB}=60\text{V}; I_E=0; T_J=150^\circ\text{C}$	5.0
		BDW73B				$V_{CB}=80\text{V}; I_E=0$ $V_{CB}=80\text{V}; I_E=0; T_J=150^\circ\text{C}$	0.2
		BDW73C				$V_{CB}=100\text{V}; I_E=0$ $V_{CB}=100\text{V}; I_E=0; T_J=150^\circ\text{C}$	5.0
		BDW73D				$V_{CB}=120\text{V}; I_E=0$ $V_{CB}=120\text{V}; I_E=0; T_J=150^\circ\text{C}$	0.2
					5.0		
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			2.0	mA	
h_{FE-1}	DC Current Gain	$I_C=3\text{A}; V_{CE}=3\text{V}$	750		20000		
h_{FE-2}	DC Current Gain	$I_C=8\text{A}; V_{CE}=3\text{V}$	100				

Switching times

t_{on}	Turn-on Time	$I_C=3\text{A}; I_{B1}=-I_{B2}=12\text{mA};$ $V_{BE(off)}=-3.5\text{V}, R_L=10\Omega$		1.0		μs
t_{off}	Turn-off Time			5.0		μs

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