

isc Silicon NPN Darlington Power Transistor

BDW39

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CE(SUS)} = 45V(\text{Min})$
- 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
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

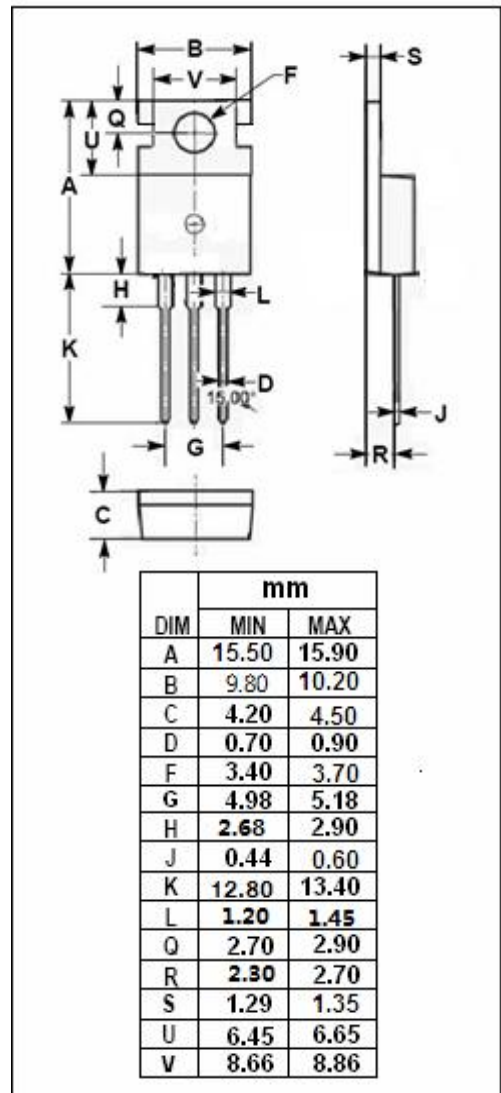
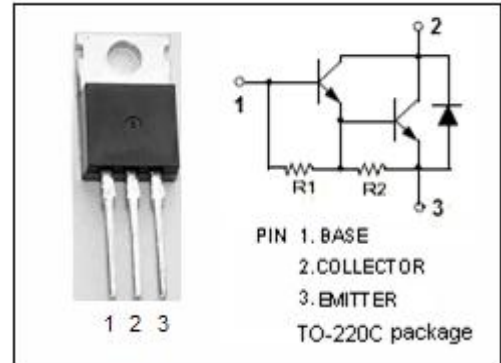
- Designed for general purpose and low speed switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	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 @ $T_C = 25^\circ\text{C}$	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**BDW39****ELECTRICAL CHARACTERISTICS****T_C=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CE0(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 30mA; I _B = 0	45			V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 5A; I _B = 10mA			2.0	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 10A; I _B = 50mA			3.0	V
V _{BE(on)}	Base-Emitter On Voltage	I _C = 10A; V _{CE} = 4V			3.0	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 45V; I _E = 0			1.0	mA
I _{CEO}	Collector Cutoff Current	V _{CE} = 22.5V; I _B = 0			2.0	mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 5V; I _C = 0			2.0	mA
h _{FE-1}	DC Current Gain	I _C = 5A; V _{CE} = 4V	1000			
h _{FE-2}	DC Current Gain	I _C = 10A; V _{CE} = 4V	250			
f _T	Current-Gain—Bandwidth Product	I _C = 3A; V _{CE} = 3V; f _{test} = 1MHz	4			MHz
C _{OB}	Output Capacitance	I _E = 0; V _{CB} = 10V; f _{test} = 0.1MHz			200	pF

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