

isc Silicon NPN Power Transistors

BDW55/57/59

DESCRIPTION

- Collector–Emitter Sustaining Voltage–
: $V_{CEO(SUS)}$ = 45V- BDW55
= 60V- BDW57
= 80V- BDW59
- Complement to Type BDW56/58/60

APPLICATIONS

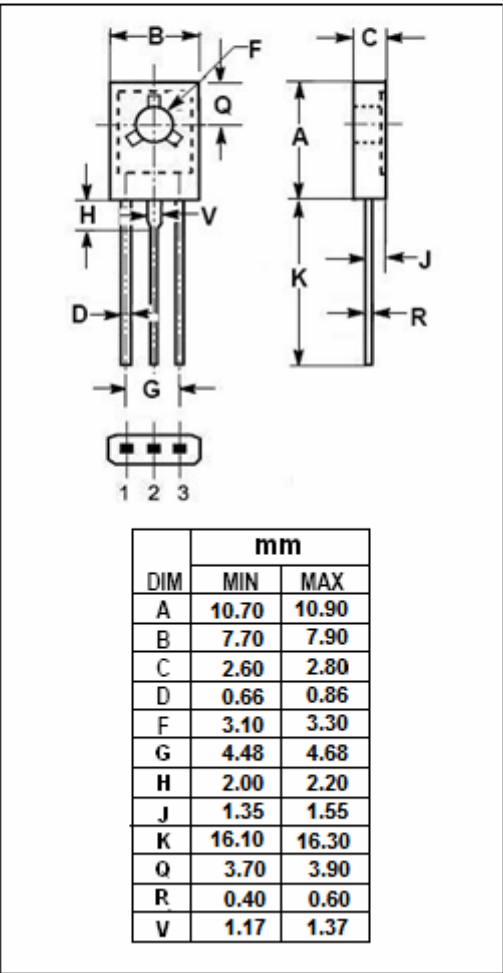
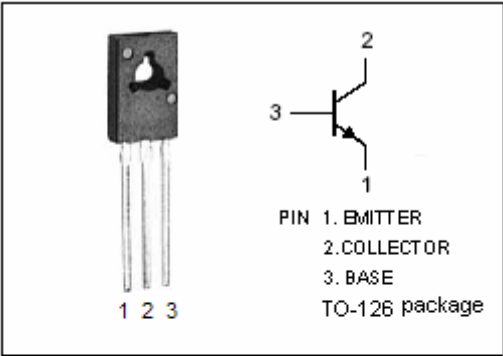
- Designed for use in professional equipment such as telecommunication and etc.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BDW55	45
		BDW57	60
		BDW59	100
V_{CER}	Collector-Emitter Voltage $R_{BE}=1k\Omega$	BDW55	45
		BDW57	60
		BDW59	100
V_{CEO}	Collector-Emitter Voltage	BDW55	45
		BDW57	60
		BDW59	80
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	1	A
I_{CM}	Collector Current-Peak	1.5	A
P_C	Collector Power Dissipation @ $T_C=25^{\circ}\text{C}$	8	W
T_J	Junction Temperature	175	$^{\circ}\text{C}$
T_{stg}	Storage Temperature Range	-65~175	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	10	$^{\circ}\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	100	$^{\circ}\text{C/W}$



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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	BDW55	$I_C = 10\text{mA}; I_B = 0$	45			V
		BDW57		60			
		BDW59		80			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C = 0.5\text{A}; I_B = 50\text{mA}$			0.5	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C = 0.5\text{A}; V_{CE} = 2\text{V}$			1.0	V
I_{CBO}	Collector Cutoff Current		$V_{CB} = V_{CB0max}; I_E = 0$			0.1	μA
I_{CBO}	Collector Cutoff Current	BDW55	$V_{CB} = 30\text{V}; I_E = 0; T_J = 150^{\circ}\text{C}$			10	μA
		BDW57	$V_{CB} = 45\text{V}; I_E = 0; T_J = 150^{\circ}\text{C}$			10	
		BDW59	$V_{CB} = 70\text{V}; I_E = 0; T_J = 150^{\circ}\text{C}$			10	
I_{EBO}	Emitter Cutoff Current		$V_{EB} = 5\text{V}; I_C = 0$			10	μA
h_{FE-1}	DC Current Gain		$I_C = 5\text{mA}; V_{CE} = 2\text{V}$	25			
h_{FE-2}	DC Current Gain		$I_C = 150\text{mA}; V_{CE} = 2\text{V}$	40		250	
h_{FE-3}	DC Current Gain		$I_C = 500\text{mA}; V_{CE} = 2\text{V}$	25			
f_T	Current-Gain—Bandwidth Product		$I_C = 50\text{mA}; V_{CE} = 5\text{V}; f_{test} = 35\text{MHz}$		250		MHz

Switching times

t_d	Delay Time	$I_C = 0.15\text{A}; I_{B1} = -I_{B2} = 15\text{mA}; V_{CC} = 10.2\text{V}$		30		ns
t_r	Rise Time			30		ns
t_{stg}	Storage Time			500		ns
t_f	Fall Time			80		ns