

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

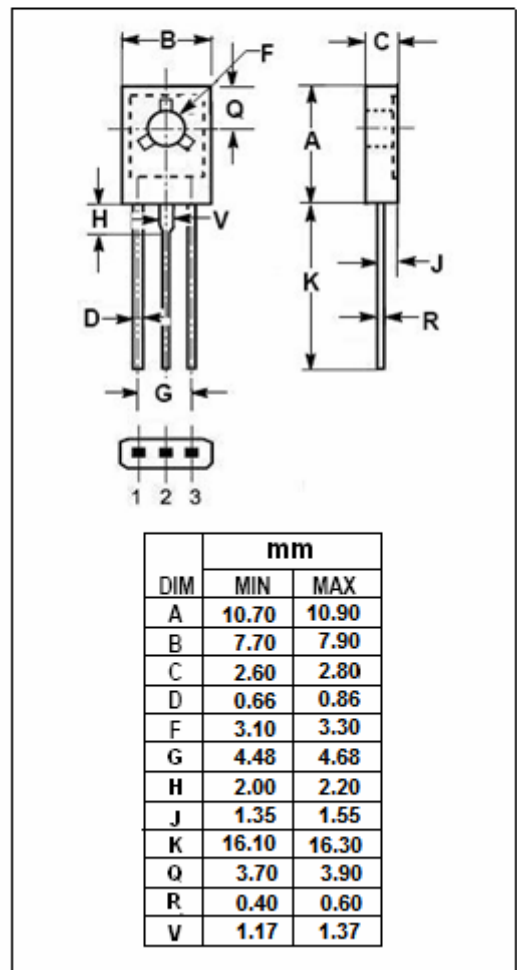
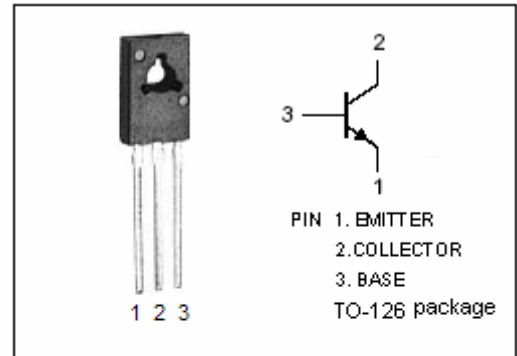
- Designed for use in professional equipment such as telecommunication and etc.

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

SYMBOL	PARAMETER	VALUE	UNIT	
$V_{CBO}$	Collector-Base Voltage	BDW55	45	V
		BDW57	60	
		BDW59	100	
$V_{CER}$	Collector-Emitter Voltage $R_{BE}=1k\Omega$	BDW55	45	V
		BDW57	60	
		BDW59	100	
$V_{CEO}$	Collector-Emitter Voltage	BDW55	45	V
		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 @ $T_C=25^{\circ}C$	8	W	
$T_J$	Junction Temperature	175	$^{\circ}C$	
$T_{stg}$	Storage Temperature Range	-65~175	$^{\circ}C$	

THERMAL CHARACTERISTICS

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



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## ELECTRICAL CHARACTERISTICS

 $T_C=25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	BDW55	$I_C=10\text{mA}; I_B=0$			V
		BDW57				
		BDW59				
$V_{CE(sat)}$	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	$\mu\text{A}$
$I_{CBO}$	Collector Cutoff Current	BDW55				$\mu\text{A}$
		BDW57				
		BDW59				
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			10	$\mu\text{A}$
$h_{FE-1}$	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