

# isc Silicon NPN Darlington Power Transistor

# BD651

## DESCRIPTION

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 120V(\text{Min})$
- High DC Current Gain  
:  $h_{FE} = 750(\text{Min}) @ I_C = 3A$
- Low Saturation Voltage
- Complement to Type BD652
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

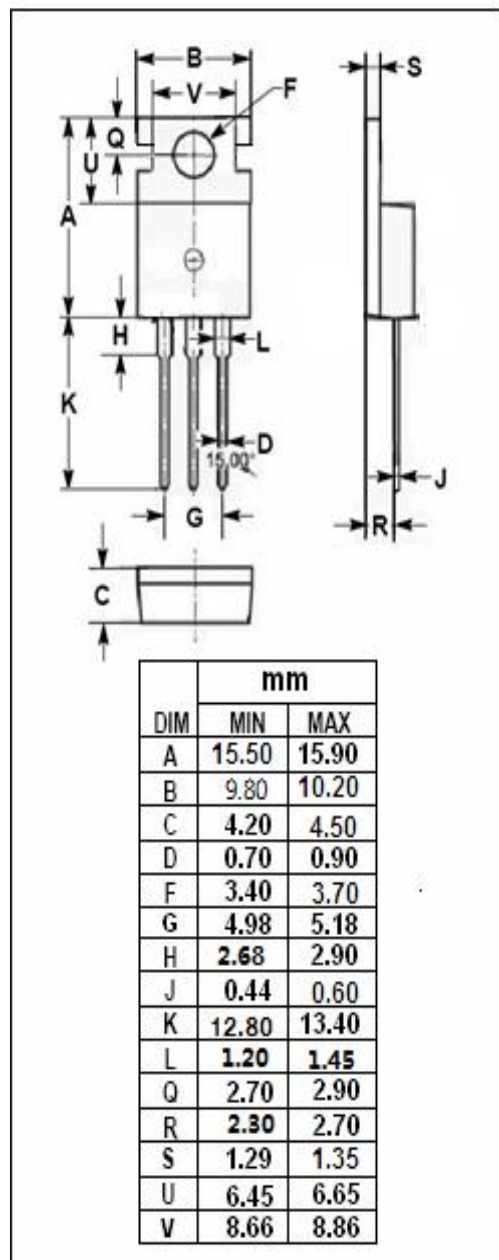
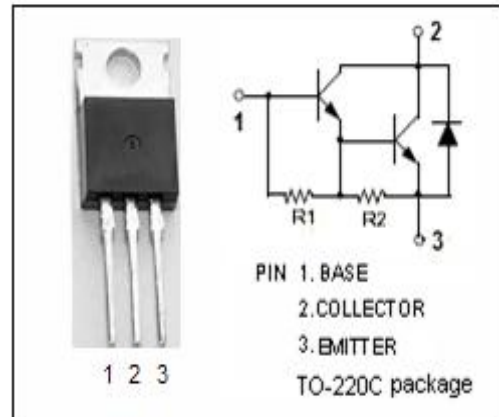
- Designed for use as complementary AF push-pull output stage applications

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	140	V
$V_{CEO}$	Collector-Emitter Voltage	120	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	8	A
$I_{CP}$	Collector Current-Peak	12	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 @ $T_c = 25^\circ\text{C}$	62.5	
$T_J$	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	2	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$



**isc Silicon NPN Darlington Power Transistor****BD651****ELECTRICAL CHARACTERISTICS** $T_C=25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE0(SUS)}$	Collector-Emitter Breakdown Voltage	$I_C=30\text{mA}; I_B=0$	120			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=12\text{mA}$			2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=5\text{A}; I_B=50\text{mA}$			2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=5\text{A}; I_B=50\text{mA}$			3.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=3\text{A}; V_{CE}=3\text{V}$			2.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=120\text{V}; I_E=0$			0.2	mA
		$V_{CB}=70\text{V}; I_E=0; T_C=150^\circ\text{C}$			2.0	
$I_{CEO}$	Collector Cutoff Current	$V_{CE}=60\text{V}; I_B=0$			0.5	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			5	mA
$h_{FE}$	DC Current Gain	$I_C=3\text{A}; V_{CE}=3\text{V}$	750			

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