

**isc Silicon NPN Darlington Power Transistor**
**2SD633**
**DESCRIPTION**

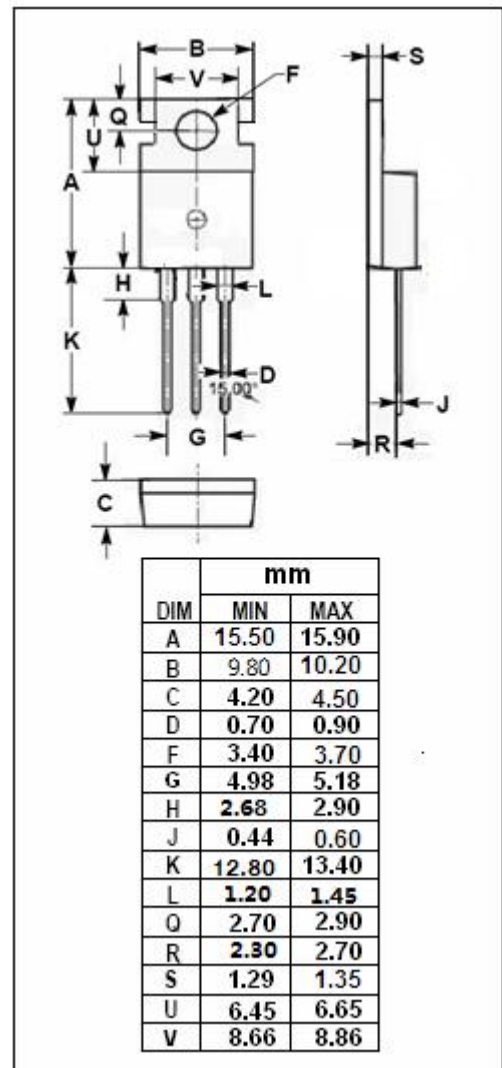
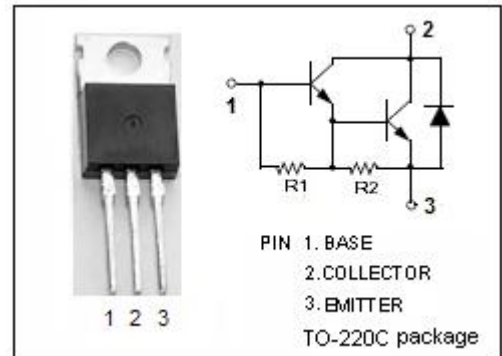
- High DC Current Gain  
:  $h_{FE} = 2000(\text{Min.}) @ I_C = 3.0\text{A}$
- Low Saturation Voltage  
:  $V_{CE(\text{sat})} = 1.5\text{V}(\text{Max.}) @ I_C = 3.0\text{A}$
- Complement to Type 2SB673
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- High power switching applications.
- Hammer drive, pulse motor drive applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	100	V
$V_{CEO}$	Collector-Emitter Voltage	100	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	7	A
$I_{CP}$	Collector Current-Peak	10	A
$I_B$	Base Current-Continuous	0.2	A
$P_C$	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	40	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$



**isc Silicon NPN Darlington Power Transistor****2SD633****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	$I_C=50\text{mA}; I_B=0$	100			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=6\text{mA}$			1.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=7\text{A}; I_B=14\text{mA}$			2.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=6\text{mA}$			2.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=100\text{V}; I_E=0$			100	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			3.0	mA
$h_{FE-1}$	DC Current Gain	$I_C=3\text{A}; V_{CE}=3\text{V}$	2000		15000	
$h_{FE-2}$	DC Current Gain	$I_C=7\text{A}; V_{CE}=3\text{V}$	1000			

## Switching times

$t_{on}$	Turn-on Time	$I_{B1}=-I_{B2}=6\text{mA}; R_L=15;$ $V_{CC}=45\text{V};$ $P_W=20\mu\text{s}, \text{Duty Cycle}\leq 1\%$		0.8		$\mu\text{s}$
$t_{stg}$	Storage Time			3.0		$\mu\text{s}$
$t_f$	Fall Time			2.5		$\mu\text{s}$

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