

isc Silicon NPN Darlington Power Transistor

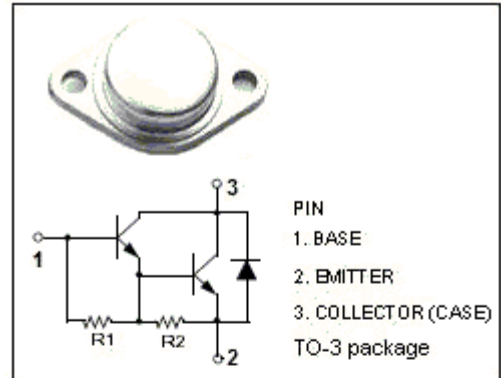
2SD1233

DESCRIPTION

- High DC Current Gain
: $h_{FE} = 1500(\text{Min.}) @ I_C = 4A, V_{CE} = 3V$
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 100V(\text{Min.})$

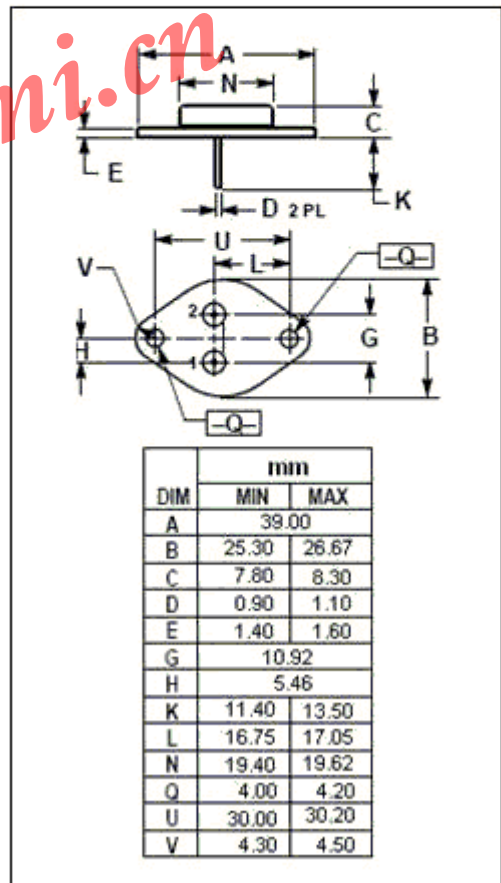
APPLICATIONS

- Designed for motor drivers, printer hammer drivers, relay drivers, voltage regulator control applications.



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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	110	V
V_{CEO}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	8	A
I_{CM}	Collector Current-Peak	12	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	70	W
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$



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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	$I_C=50\text{mA}; R_{BE}=\infty$	100			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=5\text{mA}; I_E=0$	110			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}, I_B=8\text{mA}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}, I_B=8\text{mA}$			2.0	V
I_{CBO}	Collector Cutoff current	$V_{CB}=80\text{V}, I_E=0$			0.1	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			3.0	mA
f_T	Current-Gain—Bandwidth Product	$I_C=4\text{A}; V_{CE}=5\text{V}$		20		MHz
h_{FE}	DC Current Gain	$I_C=4\text{A}; V_{CE}=3\text{V}$	1500			

Switching Times

t_{on}	Turn-On Time	$I_C=4\text{A}, I_{B1}=-I_{B2}=8\text{mA};$ $R_L=12.5\ \Omega; V_{CC}=50\text{V}$		0.6		μs
t_{stg}	Storage Time			4.8		μs
t_f	Fall Time			1.6		μs