

isc Silicon NPN Darlington Power Transistor

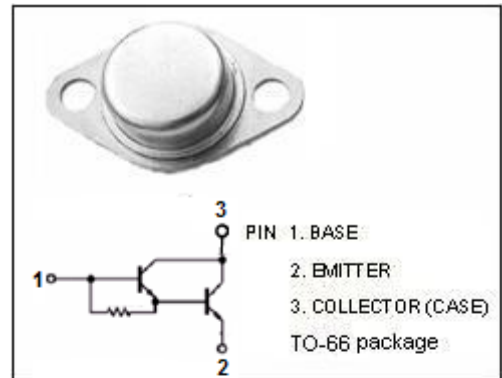
2SD684

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 300V(\text{Min})$
- High DC Current Gain-
: $h_{FE} = 1500(\text{Min.}) @ I_C = 2A$
- Low Collector-Emitter Saturation Voltage-
: $V_{CE(sat)} = 2.0V(\text{Max}) @ I_C = 4A$

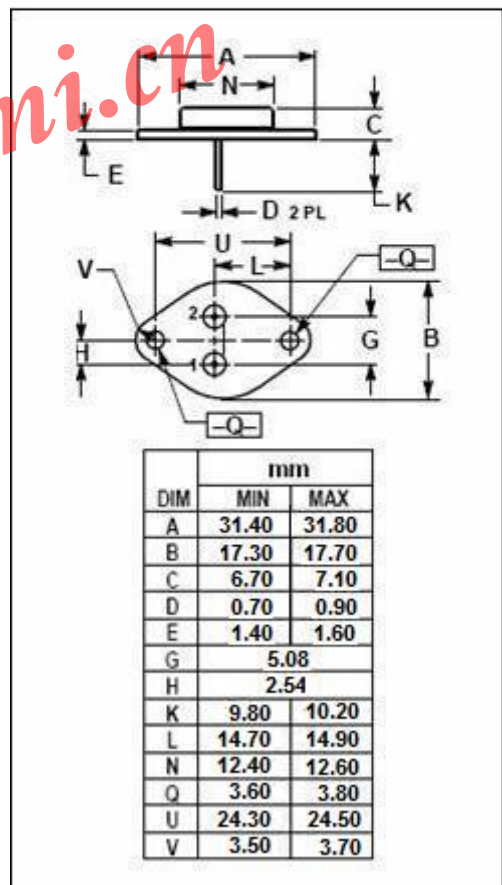
APPLICATIONS

- Igniter applications.
- High voltage switching applications.



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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	600	V
V_{CEO}	Collector-Emitter Voltage	300	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	6	A
I_B	Base Current-Continuous	1	A
P_C	Collector Power Dissipation @ $T_C=25^\circ C$	30	W
T_J	Junction Temperature	150	$^\circ C$
T_{stg}	Storage Temperature Range	-65~150	$^\circ C$



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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	$I_C=0.5\text{A}; L=40\text{mH}$	300			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=40\text{mA}$			2.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=40\text{mA}$			2.5	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=600\text{V}; I_E=0$			500	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			500	μA
h_{FE-1}	DC Current Gain	$I_C=2\text{A}; V_{CE}=2\text{V}$	1500			
h_{FE-2}	DC Current Gain	$I_C=4\text{A}; V_{CE}=2\text{V}$	200			
C_{OB}	Collector Output Capacitance	$V_{CB}=50\text{V}; I_E=0; f_{test}=1\text{MHz}$		35		pF

Switching Times

t_{on}	Turn-On Time	$I_C=4\text{A}; I_{B1}=-I_{B2}=40\text{mA}; R_L=25\Omega; V_{CC}=100\text{V}$		1.0		μs
t_s	Storage Time			8.0		μs
t_f	Fall Time			5.0		μs