

isc Silicon NPN Darlington Power Transistor

2SD683

DESCRIPTION

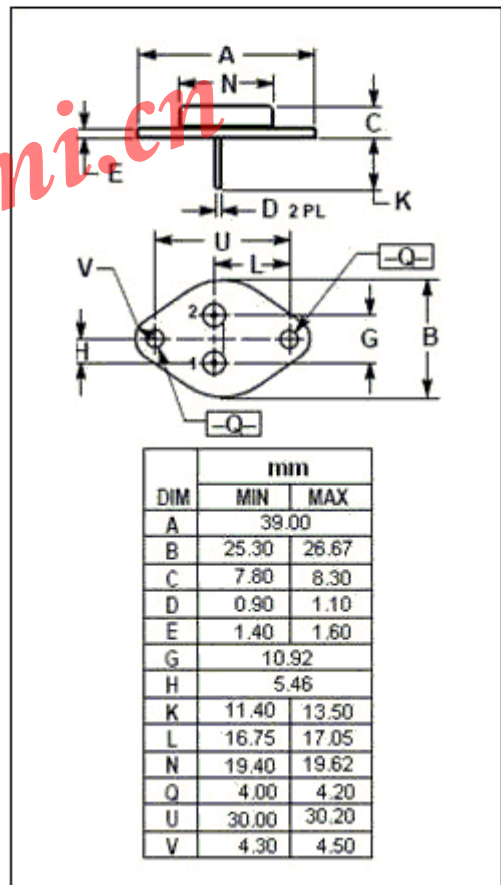
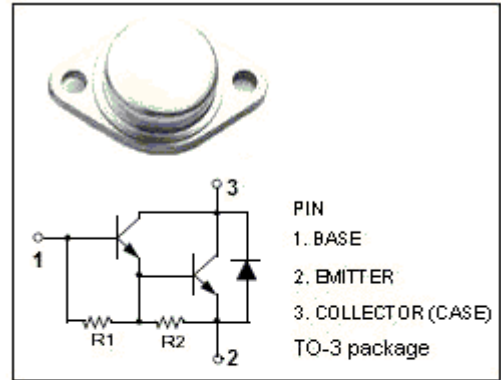
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 400V(\text{Min})$
- High DC Current Gain-  
:  $h_{FE} = 500(\text{Min.}) @ I_C = 5A$

APPLICATIONS

- High voltage and high power switching applications.
- Motor driver applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	600	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	15	A
$I_B$	Base Current	2	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	150	W
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-65~150	$^\circ\text{C}$



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## ELECTRICAL CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 5A; L= 10mH	400			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 0.2A			2.0	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 0.2A			2.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 600V; I <sub>E</sub> = 0			0.5	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0			30	mA
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 5A; V <sub>CE</sub> = 5V	500			
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 15A; V <sub>CE</sub> = 5V	30			
V <sub>ECF</sub>	C-E Diode Forward Voltage	I <sub>F</sub> = 10A			3.0	V
C <sub>OB</sub>	Output Capacitance	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0; f <sub>test</sub> = 1MHz		100		pF

## Switching Times

t <sub>on</sub>	Turn-On Time	V <sub>CC</sub> =150V; I <sub>B1</sub> = -I <sub>B2</sub> = 0.1A		0.4		μ s
t <sub>s</sub>	Storage Time			15		μ s
t <sub>f</sub>	Fall Time			3.0		μ s