

isc Silicon NPN Power Transistor

2SD1683

DESCRIPTION

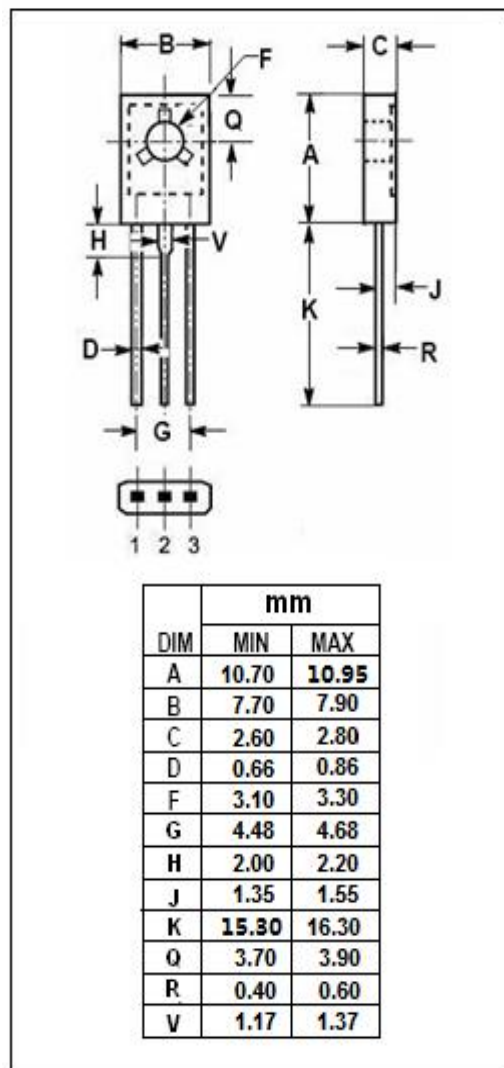
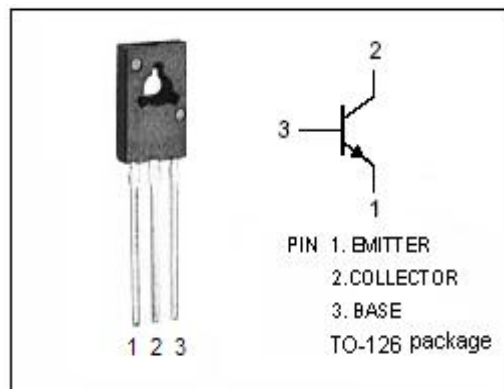
- High Collector Current- $I_C = 4A$
- Low Saturation Voltage -
: $V_{CE(sat)} = 0.5V(Max) @ I_C = 2A$
- Complement to Type 2SB1143
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- Designed for use in voltage regulations, relay drivers, lamp drivers and electrical equipment.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	4	A
I_{CP}	Collector Current-Pulse	6	A
P_C	Collector Power Dissipation @ $T_a = 25^\circ C$	1.5	W
	Collector Power Dissipation @ $T_c = 25^\circ C$	10	
T_J	Junction Temperature	150	$^\circ C$
T_{stg}	Storage Temperature Range	-55~150	$^\circ C$



isc Silicon NPN Power Transistor

2SD1683

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	$I_C = 1\text{mA}$; $R_{BE} = \infty$	50			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\text{ }\mu\text{A}$; $I_E = 0$	60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\text{ }\mu\text{A}$; $I_C = 0$	6			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 2.0\text{A}$; $I_B = 0.1\text{A}$			0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 2.0\text{A}$; $I_B = 0.1\text{A}$			1.2	V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 40\text{V}$; $I_E = 0$			1.0	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4\text{V}$; $I_C = 0$			1.0	μA
h_{FE-1}	DC Current Gain	$I_C = 100\text{mA}$; $V_{CE} = 2\text{V}$	100		560	
h_{FE-2}	DC Current Gain	$I_C = 3\text{A}$; $V_{CE} = 2\text{V}$	40			
f_T	Current-Gain—Bandwidth Product	$I_C = 50\text{mA}$; $V_{CE} = 10\text{V}$		150		MHz
C_{OB}	Output Capacitance	$I_E = 0$; $V_{CB} = 10\text{V}$, $f_{test} = 1\text{MHz}$		25		pF

Switching times

t_{on}	Turn-On Time	$I_C = 1\text{A}$; $I_{B1} = I_{B2} = 0.1\text{A}$; $V_{CC} = 25\text{V}$; $R_L = 25\text{ }\Omega$		70		ns
t_{stg}	Storage Time			650		ns
t_f	Fall Time			35		ns

◆ h_{FE-1} Classifications

R	S	T	U
100-200	140-280	200-400	280-560

NOTICE:

ISC reserves the rights to make changes of the content herein the datasheet at any time without notification. The information contained herein is presented only as a guide for the applications of our products.

ISC products are intended for usage in general electronic equipment. The products are not designed for use in equipment which require specialized quality and/or reliability, or in equipment which could have applications in hazardous environments, aerospace industry, or medical field. Please contact us if you intend our products to be used in these special applications.

ISC makes no warranty or guarantee regarding the suitability of its products for any particular purpose, nor does ISC assume any liability arising from the application or use of any products, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages.