SGS-THOMSON MICROELECTRONICS

BD905FI

POWER LINEAR AND SWITCHING APPLICATIONS

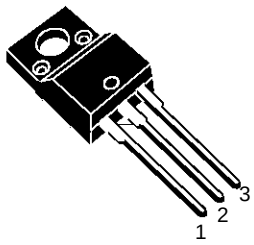
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR

APPLICATION

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

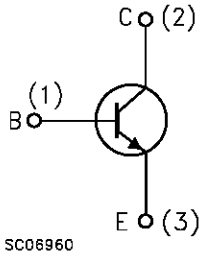
DESCRIPTION

The BD905FI is silicon epitaxial-base NPN power transistor in ISOWATT220 plastic package. It is intented for use in power linear and switching applications.



ISOWATT220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	45	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	45	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5	V
I_E, I_C	Emitter and Collector Current	15	A
I_B	Base Current	5	A
P_{tot}	Total Dissipation at T_c = 25 °C	35	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	3.57	$^oC/W$

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 45 V T_{case} = 150 ^oC			500	µA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CB} = 30 V			1	mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 100 mA	45			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 5 A I_B = 0.5 A I_C = 10 A I_B = 2.5 A			1 3	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 10 A I_B = 2.5 A			2.5	V
V_{BE}*	Base-Emitter Voltage	I_C = 5 A V_{CE} = 4 V			1.5	V
h_{FE}*	DC Current Gain	I_C = 0.5 A V_{CE} = 4 V I_C = 5 A V_{CE} = 4 V I_C = 10 A V_{CE} = 4 V	40 15 5		250 150	
f_T	Transition frequency	I_C = 0.5 A V_{CE} = 4 V	3			MHz

* Pulsed: Pulse duration = 300 µs, duty cycle 1.5 %

ISOWATT220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.4		4.6	0.173		0.181
B	2.5		2.7	0.098		0.106
D	2.5		2.75	0.098		0.108
E	0.4		0.7	0.015		0.027
F	0.75		1	0.030		0.039
F1	1.15		1.7	0.045		0.067
F2	1.15		1.7	0.045		0.067
G	4.95		5.2	0.195		0.204
G1	2.4		2.7	0.094		0.106
H	10		10.4	0.393		0.409
L2		16			0.630	
L3	28.6		30.6	1.126		1.204
L4	9.8		10.6	0.385		0.417
L6	15.9		16.4	0.626		0.645
L7	9		9.3	0.354		0.366
Ø	3		3.2	0.118		0.126