SGS-THOMSON MICROELECTRONICS

BD533FI
BD534FI

COMPLEMENTARY SILICON POWER TRANSISTORS

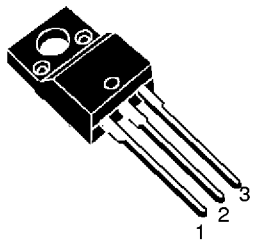
- SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

The BD533FI, is a silicon epitaxial-base NPN transistor mounted in ISOWATT220 plastic package.

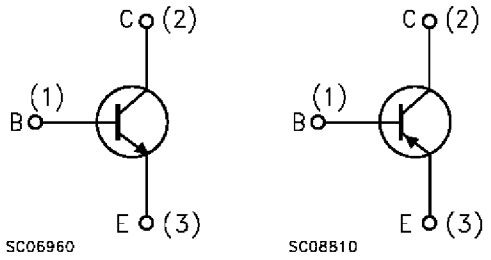
They are inteded for use in medium power linear and switching applications.

The complementary PNP type is the BD534FI.



ISOWATT220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
		NPN	BD533FI	
		PNP	BD534FI	
V_{CBO}	Collector-Base Voltage (I_E = 0)		45	V
V_{CES}	Collector-Emitter Voltage (V_{BE} = 0)		45	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		45	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)		5	V
I_C, I_E	Collector and Emitter Current		8	A
I_B	Base Current		1	A
P_{tot}	Total Dissipation at $T_c \leq 25$ °C		25	W
T_{stg}	Storage Temperature		-65 to 150	°C
T_j	Max. Operating Junction Temperature		150	°C

For PNP types voltage and current values are negative.

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case Max	5	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient Max	62.5	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = 45 V			0.1	mA
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 45 V			0.1	mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 100 mA	45			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 2 A I_B = 0.2 A I_C = 6 A I_B = 0.6 A		 0.8	0.8	V V
V_{BE}*	Base-Emitter Voltage	I_C = 2 A V_{CE} = 2 V			1.5	V
h_{FE}*	DC Current Gain	I_C = 10 mA V_{CE} = 5 V I_C = 500 mA V_{CE} = 2 V I_C = 2 A V_{CE} = 2 V	20 40 25			
f_T	Transition Frequency	I_C = 500 mA V_{CE} = 1 V	3	12		MHz

* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %
For PNP types voltage and current values are negative.

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