SGS-THOMSON MICROELECTRONICS

2N5153

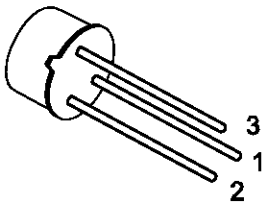
SILICON PNP TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE

DESCRIPTION

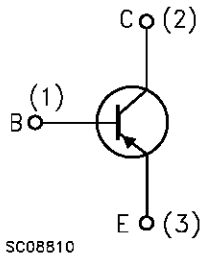
The 2N5153 is a silicon epitaxial planar PNP transistors in Jedec TO-39 metal case intended for use in switching applications.

The complementary NPN type is the 2N5154.



TO-39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	-100	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	-80	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	-5.5	V
I_C	Collector Current	-5	A
I_{CM}	Collector Peak Current	-10	A
I_B	Base Current	-2.5	A
P_{tot}	Total Dissipation at $T_c \leq 50\ ^oC$	10	W
P_{tot}	Total Dissipation at $T_c \leq 100\ ^oC$	6.7	W
P_{tot}	Total Dissipation at $T_{amb} \leq 25\ ^oC$	1	W
T_{stg}	Storage Temperature	-65 to 200	^oC
T_j	Max. Operating Junction Temperature	200	^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case Max	15	$^oC/W$
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient Max	175	$^oC/W$

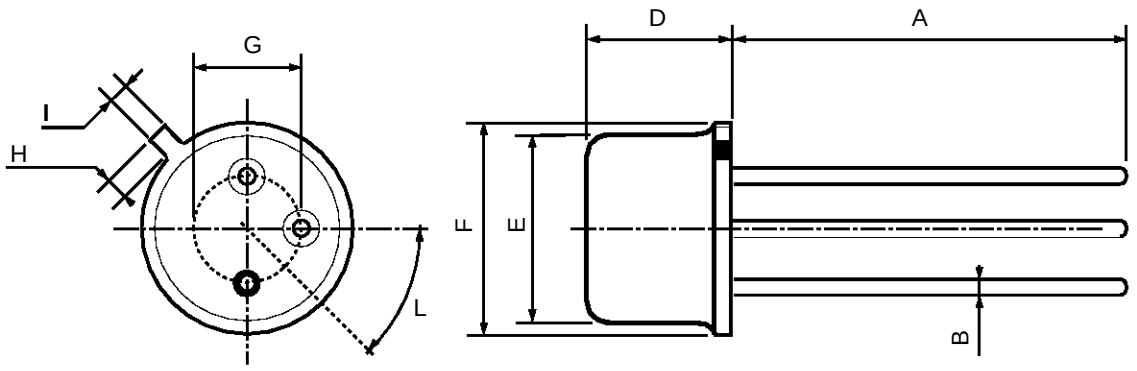
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = -60 V V_{CE} = -100 V			-1 -1	µA mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = -40 V			-50	µA
I_{CEV}	Collector Cut-off Current (V_{BE} = 2V)	V_{CE} = -60 V T_C = 150 ^oC			-500	µA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = -4 V V_{EB} = -5.5 V			-1 -1	µA mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = -100 mA	-80			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = -2.5 A I_B = -250 mA I_C = -5 A I_B = -500 mA			-0.75 -1.5	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = -2.5 A I_B = -250 mA I_C = -5 A I_B = -500 mA			-1.45 -2.2	V V
V_{BE}*	Base-Emitter Voltage	I_C = -2.5 A V_{CE} = -5 V			-1.45	V
h_{FE}*	DC Current Gain	I_C = -50 mA V_{CE} = -5 V I_C = -2.5 A V_{CE} = -5 V I_C = -5 A V_{CE} = -5 V I_C = -2.5 A V_{CE} = -5 V T_C = -55 ^oC	50 70 40 35		200	
h_{FE}	Small Signal Current Gain	I_C = -0.1 A V_{CE} = -5 V f = 1KHz I_C = -0.5 A V_{CE} = -5 V f = 20MHz	50 3.5			
C_{CBO}	Collector-Base Capacitance	I_E = 0 V_{CB} = -10 V f = 1MHz			250	pF
t_{on}	Turn on Time	I_C = -5 A V_{CC} = -30 V I_{B1} = -0.5 A		0.5		µs
t_{off}	Turn off Time	I_C = -5 A V_{CC} = -30 V I_{B1} = $-I_{B2}$ = -0.5A		1.3		µs

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

TO39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45^{o} (typ.)					



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