

PNP POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/545

Devices

2N5151
2N5151L

2N5153
2N5153L

Qualified Level

JAN
JANTX
JANTXV

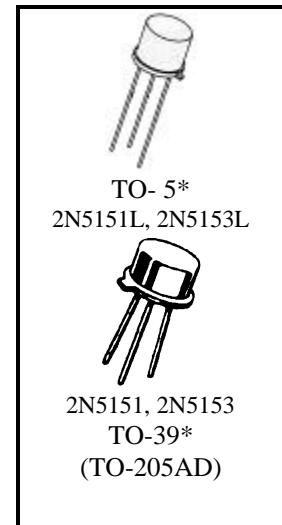
MAXIMUM RATINGS

Ratings	Symbol	All Units	Units
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Base Voltage	V_{CBO}	100	Vdc
Emitter-Base Voltage	V_{EBO}	5.5	Vdc
Collector Current	$I_C^{(3,4)}$	2.0	Adc
Total Power Dissipation	P_T	@ $T_A = +25^{\circ}C^{(1)}$	1.0
		@ $T_C = +25^{\circ}C^{(2)}$	11.8
Operating & Storage Temperature Range	T_j, T_{stg}	-65 to +200	$^{\circ}C$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	15	$^{\circ}C/W$

- 1) Derate linearly 5.7 mW/ $^{\circ}C$ for $T_A > +25^{\circ}C$
- 2) Derate linearly 66.7 mW/ $^{\circ}C$ for $T_C > +25^{\circ}C$
- 3) Derate linearly 6.67 mW/ $^{\circ}C$ for $T_A > +25^{\circ}C$
- 4) Derate linearly 80 mW/ $^{\circ}C$ for $T_C > +25^{\circ}C$



*See appendix A for package outline

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}C$ unless otherwise noted)

Characteristics	Symbol	Min.	Max.	Unit
-----------------	--------	------	------	------

OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 100 \text{ mAdc}, I_B = 0$	$V_{(BR)CEO}$	80		Vdc
Emitter-Base Cutoff Current $V_{EB} = 4.0 \text{ Vdc}, I_C = 0$ $V_{EB} = 5.5 \text{ Vdc}, I_C = 0$	I_{EBO}		1.0	μAdc
			1.0	mAdc
Collector-Emitter Cutoff Current $V_{CE} = 60 \text{ Vdc}, V_{BE} = 0$ $V_{CE} = 100 \text{ Vdc}, V_{BE} = 0$	I_{CES}		1.0	μAdc
			1.0	mAdc
Collector-Base Cutoff Current $V_{CE} = 40 \text{ Vdc}, I_B = 0$	I_{CEO}		50	μAdc

2N5151, 2N5153 JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
DC CHARACTERISTICS				
Forward Current Transfer Ratio $I_C = 50 \text{ mA dc}, V_{CE} = 5 \text{ V dc}$	2N5151 2N5153	20 50		
$I_C = 2.5 \text{ A dc}, V_{CE} = 5 \text{ V dc}$	2N5151 2N5153	30 70	90 200	
$I_C = 5 \text{ A dc}, V_{CE} = 5 \text{ V dc}$	2N5151 2N5153	20 40		
Collector-Emitter Saturation Voltage $I_C = 2.5 \text{ A dc}, I_B = 250 \text{ A dc}$ $I_C = 5 \text{ A dc}, I_B = 500 \text{ A dc}$	$V_{CE(sat)}$		0.75 1.5	Vdc
Base-Emitter Voltage nonsaturated $V_{CE} = 5 \text{ V dc}, I_C = 2.5 \text{ A dc}$	V_{BE}		1.45	Vdc
Base-Emitter Saturation Voltage $I_C = 2.5 \text{ A dc}, I_B = 250 \text{ mA dc}$ $I_C = 5 \text{ A dc}, I_B = 500 \text{ mA dc}$	$V_{BE(sat)}$		1.45 2.2	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short Circuit Forward-Current Transfer Ratio $I_C = 500 \text{ mA dc}, V_{CE} = 5 \text{ V dc}, f = 10 \text{ MHz}$	$ h_{fe} $	6 7		
Common-Emitter Small-Signal Short-Circuit Forward-Current Transfer Ratio $I_C = 100 \text{ mA dc}, V_{CE} = 5 \text{ V dc}, f = 1 \text{ kHz}$	h_{fe}	20 50		
Output Capacitance $V_{CB} = 10 \text{ V dc}, I_E = 0, f = 1.0 \text{ MHz}$	C_{obo}		250	pF

SWITCHING CHARACTERISTICS

Turn-On Time $I_C = 5 \text{ A dc}, I_{B1} = 500 \text{ mA dc}$	t_{on}		0.5	μs
Turn-Off Time $R_L = 6\Omega$	t_{off}		1.5	μs
Storage Time $I_{B2} = -500 \text{ mA dc}$	t_s		1.4	μs
Fall Time $V_{BE(OFF)} = 3.7 \text{ V dc}$	t_f		0.5	μs

SAFE OPERATING AREA

DC Tests $T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t_p = 1.0 \text{ s}$ Test 1 $V_{CE} = 5.8 \text{ V dc}, I_C = 2.0 \text{ A dc}$ Test 2 $V_{CE} = 32 \text{ V dc}, I_C = 340 \text{ mA dc}$ Test 3 $V_{CE} = 80 \text{ V dc}, I_C = 20 \text{ mA dc}$
--



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.