



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/544

DEVICES

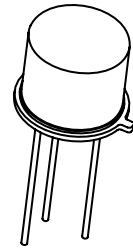
2N5152 2N5154
 2N5152L 2N5154L
 2N5152U3 2N5154U3

LEVELS

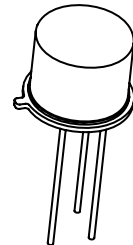
JAN
 JANTX
 JANTXV
 JANS

ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

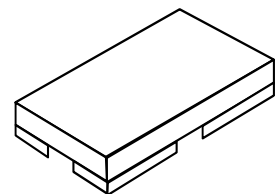
Parameters / Test Conditions	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Base Voltage	V_{CBO}	100	Vdc
Emitter-Base Voltage	V_{EBO}	5.5	Vdc
Collector Current	I_C	2.0	Adc
Total Power Dissipation ⁽¹⁾ @ $T_A = +25^\circ\text{C}$ @ $T_C = +25^\circ\text{C}$	P_T	1.0 10	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$
Thermal Resistance, Junction-to Case ⁽¹⁾	$R_{\theta JC}$	10 1.7 (U3)	$^\circ\text{C/W}$



TO-5
 2N5152L, 2N5154L



TO-39 (TO-205AD)
 2N5152, 2N5154



U-3
 2N5152U3, 2N5154U3

Note:

- See 19500/544 for thermal derating curves.
- This value applies for $P_W \leq 8.3\text{ms}$, duty cycle $\leq 1\%$.

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Parameters / Test Conditions	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 1.0	μAdc 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 1.0	μAdc mAdc
Collector-Emitter Cutoff Current $V_{CE} = 40\text{Vdc}, I_B = 0$	I_{CEO}		50	μAdc
ON CHARACTERISTICS				
Forward-Current Transfer Ratio $I_C = 50\text{mAdc}, V_{CE} = 5\text{Vdc}$	h_{FE}	20	---	
2N5152		50	---	
2N5154		30	90	
$I_C = 2.5\text{Adc}, V_{CE} = 5\text{Vdc}$		70	200	

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/544

ELECTRICAL CHARACTERISTICS (con't)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
$I_C = 5\text{A dc}$, $V_{CE} = 5\text{V dc}$ 2N5152 2N5154	h_{FE}	20 40		
Collector-Emitter Saturation Voltage $I_C = 2.5\text{A dc}$, $I_B = 250\text{mA dc}$ $I_C = 5.0\text{A dc}$, $I_B = 500\text{mA dc}$	$V_{CE(sat)}$		0.75 1.5	Vdc
Base-Emitter Voltage Non-Saturation $I_C = 2.5\text{A dc}$, $V_{CE} = 5\text{V dc}$	V_{BE}		1.45	Vdc
Base-Emitter Saturation Voltage $I_C = 2.5\text{A dc}$, $I_B = 250\text{mA dc}$ $I_C = 5.0\text{A dc}$, $I_B = 500\text{mA dc}$	$V_{BE(sat)}$		1.45 2.2	Vdc

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 500\text{mA dc}$, $V_{CE} = 5\text{V dc}$, $f = 10\text{MHz}$ 2N5152 2N5154	$ h_{fe} $	6 7		
Small-signal short Circuit Forward-Current Transfer Ratio $I_C = 100\text{mA dc}$, $V_{CE} = 5\text{V dc}$, $f = 1\text{KHz}$ 2N5152 2N5154	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

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
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 Cycle, $t_p = 1.0\text{s}$ Test 1 $V_{CE} = 5.0\text{V dc}$, $I_C = 2.0\text{A dc}$ Test 2 $V_{CE} = 32\text{V dc}$, $I_C = 310\text{mA dc}$ Test 3 $V_{CE} = 80\text{V dc}$, $I_C = 12.5\text{mA dc}$
