SEMICOA SEMICONDUCTORS

Data Sheet No. 2N5154L

Type 2N5154L
Geometry 9201
Polarity NPN
Qual Level: JAN - JANS

Generic Part Number: 2N5154L

REF: MIL-PRF-19500/544

Features:

- Silicon power transistor for use in high speed switching applications.
- Housed in a TO-5 case.
- Also available in chip form using the 9201 chip geometry.
- The Min and Max limits shown are per MIL-PRF-19500/544 which Semicoa meets in all cases.

Request Quotation

TO-5

Maximum Ratings

T_C = 25°C unless otherwise specified

Rating	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	80	V
Collector-Base Voltage	V_{CBO}	100	V
Emitter-Base Voltage	V_{EBO}	5.5	V
Collector Current, Continuous	I_C	2	A
Collector Current, P_W < 8.3 ms, < 1% duty cycle	I_C	10	A
Reverse Pulse Energy		15	mJ
Power Disipation T_A = 25°C ambient Derate above 25°C	P_T	1.0 5.7	Watt mW/°C
Operating Junction Temperature	T_J	-65 to +200	°C
Storage Temperature	T_{STG}	-65 to +200	°C

Electrical Characteristics

$T_C = 25^oC$ unless otherwise specified

OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage I_C = 100 mA, I_B = 0, pulsed	$V_{(BR)CBO}$	80	---	V
Base-Emitter Cutoff Current				
V_{EB} = 4 V, I_C = 0	I_{EBO1}	---	1.0	µA
V_{EB} = 5.5 V, I_C = 0	I_{EBO2}	---	1.0	mA
Collector-Emitter Cutoff Current				
V_{CE} = 60 V, V_{BE} = 0	I_{CES1}	---	1.0	µA
V_{CE} = 100 V, V_{BE} = 0	I_{CES2}	---	1.0	mA
V_{CE} = 40 V, I_B = 0	I_{CEO}	---	50	µA
V_{CE} = 60 V, V_{BE} = -2 V, T_C = 150°C	I_{CEX}	---	500	µA

ON Characteristics	Symbol	Min	Max	Unit
Forward Current Transfer Ratio				
I_C = 50 mA, V_{CE} = 5 V	h_{FE1}	50	---	---
I_C = 2.5 A, V_{CE} = 5 V, pulsed	h_{FE2}	70	200	---
I_C = 5.0 A, V_{CE} = 5 V, pulsed	h_{FE3}	40	---	---
I_C = 2.55 A, V_{CE} = 5 V pulsed, T_C = -55°C	h_{FE4}	25	---	---
Base-Emitter Voltage, Nonsaturted				
V_{CE} = 5 V, I_C = 2.5 A, pulsed	V_{BE}	---	1.45	V dc
Base-Emitter Saturation Voltage				
I_C = 2.5 A, I_B = 250 mA, pulsed	$V_{BE(sat)1}$	---	1.45	V dc
I_C = 5 A, I_B = 500 mA, pulsed	$V_{BE(sat)2}$	---	2.2	V dc
Collector-Emitter Saturation Voltage				
I_C = 2.5 A, I_B = 250 mA, pulsed	$V_{CE(sat)1}$	---	0.75	V dc
I_C = 5 A, I_B = 500 mA, pulsed	$V_{CE(sat)2}$	---	1.5	V dc

Small Signal Characteristics	Symbol	Min	Max	Unit
Magnitude of Common Emitter Small Signal Short Circuit Forward Current Transfer Ratio V_{CE} = 5 V, I_C = 500 mA, f = 10 MHz	$\|h_{fe}\|$	7.0	---	---
Common Emitter, Small Signal Short Circuit Forward Current Transfer Ratio V_{CE} = 5 V, I_C = 100 mA, f = 1 kHz	h_{fe}	50	---	---
Open Circuit Output Capacitance V_{CB} = 10 V, I_E = 0, f = 1 MHz	C_{OBO}	---	250	pF

Switching Time	Symbol	Min	Max	Unit
Delay Time I_C = 5 A, I_{B1} = 500 mA	t_{ON}	---	0.5	µs
Storage Time I_{B2} = -500 mA	t_s	---	1.4	µs
Fall Time $V_{BE(off)}$ = 3.7 V	t_f	---	0.5	µs
Turn-Off Time R_L = 6 ohms	t_{OFF}	---	1.5	µs