SEMICOA SEMICONDUCTORS

Data Sheet No. 2N4150

Type 2N4150
Geometry 9201
Polarity NPN
Qual Level: JAN - JANTXV

Generic Part Number: 2N4150

REF: MIL-PRF-19500/394

Features:

- Power switching transistor for high speed switching applicatons.
- 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-19500/394 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}	70	V
Collector-Base Voltage	V_{CBO}	100	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current, Continuous	I_C	10	A
Power Dissipation at 25°C ambient Derate above 25°C	P_T	1.0 5.7	mW mW/°C
Power Dissipation at 25°C ambient Derate above 25°C	P_T	5.0 50	W mW/°C
Thermal Impedance	R_{JC} R_{JA}	0.020 0.175	°C/mW °C/mW
Operating Junction Temperature	T_J	-65 to +200	°C
Storage Temperature	T_{STG}	-65 to +200	°C

Electrical Characteristics

T_C = 25°C unless otherwise specified

OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage I_C = 10 µA	$V_{(BR)CBO}$	100	---	V
Collector-Emitter Breakdown Voltage I_C = 0.1 A, pulsed	$V_{(BR)CEO}$	70	---	V
Emitter-Base Breakdown Voltage I_E = 10 µA	$V_{(BR)EBO}$	7.0	---	V
Collector-Emitter Cutoff Current V_{CE} = 60 V V_{BE} = 0.5 V, V_{CE} = 100 V V_{BE} = -0.5 V, V_{CE} = 80 V, T_C = +150°C	 I_{CEO1} I_{CEX} I_{CEX2}	 --- ---	 10 10 100	 µA µA µA
Emitter-Base Cutoff Current V_{EB} = 5V	I_{EBO}	---	0.1	µA
Collector-Base Cutoff Current V_{CB} = 80 V	I_{CBO}	---	0.1	µA

ON Characteristics	Symbol	Min	Max	Unit
Forward current Transfer Ratio				
I_C = 1 A, V_{CE} = 5 V, pulsed	h_{FE1}	50	200	---
I_C = 5 A, V_{CE} = 5.0 V, pulsed	h_{FE2}	40	120	---
I_C = 10 A, V_{CE} = 5 V	h_{FE3}	10	---	---
I_C = 5 A, V_{CE} = 5.0 V, T_C = -55°C	h_{FE4}	20	---	---
Collector-Emitter Saturation Voltage				
I_C = 5 A, I_B = 0.5 A pulsed	$V_{CE(sat)1}$	---	0.6	V dc
I_C = 10 A, I_B = 1 A, pulsed	$V_{CE(sat)2}$	---	2.5	V dc
Base-Emitter Saturation Voltage				
I_C = 5 A, I_B = 0.5 A, pulsed	$V_{BE(sat)1}$	---	1.5	V dc
I_C = 10 A, I_B = 1 A, pulsed	$V_{BE(sat)2}$	---	2.5	V dc
Safe Operating Area, Continuous DC T_C = 25°C, t = 1.0 s	V_{CE} = 40 V, I_C = 0.22 A V_{CE} = 70 V, I_C = 90 mA			

Small Signal Characteristics	Symbol	Min	Max	Unit
Magnitude of Common Emitter Small Signal Short Circuit Forward Current Transfer Ratio V_{CE} = 10 V, I_C = 0.2 A, f = 10 MHz	$\|h_{fe}\|$	1.5	7.5	---
Open Circuit Output Capacitance V_{CB} = 10 V, I_E = 0, 100 kHz < f < 1 MHz	C_{OBO}	---	350	pF
Small Signal, Short Circuit, Forward Current V_{CE} = 10 V, I_C = 50 mA, f = 1 kHz	h_{fe}	40	160	---

Switching Characteristics	Symbol	Min	Max	Unit
Delay Time Per Figure 4, MIL-PRF-19500/394C	t_d	---	50	ns
Rise Time Per Figure 4, MIL-PRF-19500/394C	t_r	---	500	ns
Storage Time Per Figure 4, MIL-PRF-19500/394C	t_s	---	1.5	ns
Fall Time Per Figure 4, MIL-PRF-19500/394C	t_f	---	50	ns