

**Type 2N5237**  
**Geometry 3111**  
**Polarity NPN**  
**Qual Level: JAN - JANTXV**

**Generic Part Number:**  
**2N5237**

**REF: MIL-PRF-19500/394**

**Features:**

[Request Quotation](#)

- Silicon power transistor for use in high speed switching applications.
- Housed in a [TO-39](#) case.
- Also available in chip form using the 3111 chip geometry.
- The Min and Max limits shown are per [MIL-PRF-19500/394](#) which Semicoa meets in all cases.



**Maximum Ratings**

$T_C = 25^\circ\text{C}$  unless otherwise specified

Rating	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{CEO}$	120	V
Collector-Base Voltage	$V_{CBO}$	150	V
Emitter-Base Voltage	$V_{EBO}$	10	V
Collector Current, Continuous	$I_C$	10	A
Power Disipation $T_A = 25^\circ\text{C}$ ambient Derate above $25^\circ\text{C}$	$P_T$	1.0 5.7	mW mW/°C
Power Disipation $T_A = 25^\circ\text{C}$ ambient Derate above $25^\circ\text{C}$	$P_T$	5.0 50	Watt 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**
 $T_C = 25^\circ\text{C}$  unless otherwise specified

OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage $I_C = 10 \mu\text{A}$	$V_{(BR)CBO}$	150	---	V
Collector-Emitter Breakdown Voltage $I_C = 0.1 \text{ A}$ , pulsed	$V_{(BR)CEO}$	120	---	V
Emitter-Base Breakdown Voltage $I_E = 10 \mu\text{A}$	$V_{(BR)EBO}$	7.0	---	V
Collector-Emitter Cutoff Current $V_{CE} = 110 \text{ V}$ $V_{BE} = 0.5 \text{ V}$ , $V_{CE} = 150 \text{ V}$ $V_{BE} = -0.5 \text{ V}$ , $V_{CE} = 150 \text{ V}$ , $T_C = +150^\circ\text{C}$	$I_{CEO1}$ $I_{CEX}$ $I_{CEX2}$	--- --- ---	10 10 100	$\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$
Base-Emitter Cutoff Current $V_{EB} = 5 \text{ V}$	$I_{EBO}$	---	0.1	$\mu\text{A}$
Collector-Base Cutoff Current $V_{CB} = 80 \text{ V}$	$I_{CBO}$	---	0.1	$\mu\text{A}$

ON Characteristics	Symbol	Min	Max	Unit
<b>Forward Current Transfer Ratio</b> $I_C = 1 \text{ A}$ , $V_{CE} = 5 \text{ V}$ , pulsed $I_C = 5 \text{ A}$ , $V_{CE} = 5 \text{ V}$ , pulsed $I_C = 10 \text{ A}$ , $V_{CE} = 5 \text{ V}$ $I_C = 5 \text{ A}$ , $V_{CE} = 5 \text{ V}$ , $T_C = -55^\circ\text{C}$	$h_{FE1}$ $h_{FE2}$ $h_{FE3}$ $h_{FE4}$	50 40 10 20	225 120 --- ---	--- --- --- ---
<b>Base-Emitter Saturation Voltage</b> $I_C = 5 \text{ A}$ , $I_B = 0.5 \text{ A}$ , pulsed $I_C = 10 \text{ A}$ , $I_B = 1 \text{ A}$ , pulsed	$V_{BE(sat)1}$ $V_{BE(sat)2}$	--- ---	1.5 2.5	V dc V dc
<b>Collector-Emitter Saturation Voltage</b> $I_C = 5 \text{ A}$ , $I_B = 0.5 \text{ A}$ , pulsed $I_C = 10 \text{ A}$ , $I_B = 1 \text{ A}$ , pulsed	$V_{CE(sat)1}$ $V_{CE(sat)2}$	--- ---	0.6 2.5	V dc V dc
<b>Safe Operating Area, Continuous DC</b> $T_C = 25^\circ\text{C}$ , $t = 1.0 \text{ s}$			$V_{CE} = 40 \text{ V}$ , $I_C = 0.22 \text{ A}$ $V_{CE} = 70 \text{ V}$ , $I_C = 90 \text{ mA}$	

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

Switching Time	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