



NPN 2N6249 – 2N6250 – 2N6251

HIGH VOLTAGE SILICON POWER TRANSISTORS

The 2N6249 – 2N6250 – 2N6251 are NPN silicon transistors in Jedec TO-3 metal case. They are designed for high voltage inverters, switching regulators and line operated amplifier applications. Especially well suited for switching power supply applications. Compliance to RoHS.

- High Voltage Breakdown Rating
- Low Saturation Voltages
- Fast Switching Capability
- High Es/b Energy Handling Capability

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
V_{CEO}	Collector-Emitter Voltage (*)	2N6249	200	V
		2N6250	275	
		2N6251	350	
V_{CER}	Collector-Emitter Voltage (*) $R_{BE}=50 \Omega$	2N6249	225	V
		2N6250	300	
		2N6251	375	
V_{CB}	Collector-Base Voltage (*)	2N6249	300	V
		2N6250	375	
		2N6251	450	
V_{EB}	Emitter-Base Voltage	6	V	
I_C	Collector Current	10	A	
I_{CM}	Collector Current Peak	30		
I_B	Base Current	10	A	
P_t	Total Power Dissipation @ $T_C = 25^\circ$	175	W	
T_J	Junction Temperature (*)	200	°C	
T_{stg}	Storage Temperature (*)	-65 to +200		



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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=200\text{ mA}, I_B=0$	2N6249	200	-	-	V
			2N6250	275	-	-	
			2N6251	350	-	-	
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=0.2\text{ A}, R_{BE}=50\ \Omega$	2N6249	225	-	-	V
			2N6250	300	-	-	
			2N6251	375	-	-	
I_{CEO}	Collector-Emitter Current	$V_{CE}=150\text{ V}, I_B=0$	2N6249	-	-	5	mA
		$V_{CE}=225\text{ V}, I_B=0$	2N6250				
		$V_{CE}=300\text{ V}, I_B=0$	2N6251				
I_{CEX}	Collector Cutoff Current	$V_{CE}=200\text{ V}, V_{EB}=-1.5\text{ V}$	2N6249	-	-	5	mA
		$V_{CE}=200\text{ V}, V_{EB}=-1.5\text{ V}$ $T_C=150^\circ\text{C}$		-	-	10	
		$V_{CE}=275\text{ V}, V_{EB}=-1.5\text{ V}$	2N6250	-	-	5	
		$V_{CE}=275\text{ V}, V_{EB}=-1.5\text{ V}$ $T_C=150^\circ\text{C}$		-	-	10	
		$V_{CE}=350\text{ V}, V_{EB}=-1.5\text{ V}$	2N6251	-	-	5	
		$V_{CE}=350\text{ V}, V_{EB}=-1.5\text{ V}$ $T_C=150^\circ\text{C}$		-	-	10	
I_{EBO}	Emitter Cutoff Current	$V_{BE}=6\text{ V}, I_C=0$	2N6249	-	-	1	mA
			2N6250				
			2N6251				
h_{FE}	Dc Current Gain	$I_C=10\text{ A}, V_{CE}=3\text{ V}$	2N6249	10	-	50	-
			2N6250	8	-	50	
			2N6251	6	-	50	
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage (*)	$I_C=10\text{ A}, I_B=1\text{ A}$	2N6249	-	-	1.5	V
		$I_C=10\text{ A}, I_B=1.25\text{ A}$	2N6250				
		$I_C=10\text{ A}, I_B=1.67\text{ A}$	2N6251				
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage (*)	$I_C=10\text{ A}, I_B=1\text{ A}$	2N6249	-	-	2.25	V
		$I_C=10\text{ A}, I_B=1.25\text{ A}$	2N6250				
		$I_C=10\text{ A}, I_B=1.67\text{ A}$	2N6251				
$I_{s/b}$	Second Breakdown Collector Current With Base Forward Biased	$V_{CE}=30\text{ V}$ $t=1\text{ s}, \text{non-repetitive}$		5.8	-	-	A
f_T	Transition Frequency	$V_{CE}=10\text{ V}, I_C=1\text{ A}, f=1.0\text{ MHz}$		2.5	-	-	MHz



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SWITCHING TIMES

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
t_r	Rise Time	$V_{CC}= 200\text{ V}, I_C= 10\text{ A}$ $I_{B1} = -I_{B2}=1\text{ A}$	2N6249	-	-	2	μs
t_s	Storage Time	$V_{CC}= 200\text{ V}, I_C= 10\text{ A}$ $I_{B1} = -I_{B2}=1.25\text{ A}$	2N6250	-	-	3.5	
t_f	Fall Time	$V_{CC}= 200\text{ V}, I_C= 10\text{ A}$ $I_{B1} = -I_{B2}=1.67\text{ A}$	2N6251	-	-	1	

THERMAL CHARACTERISTICS

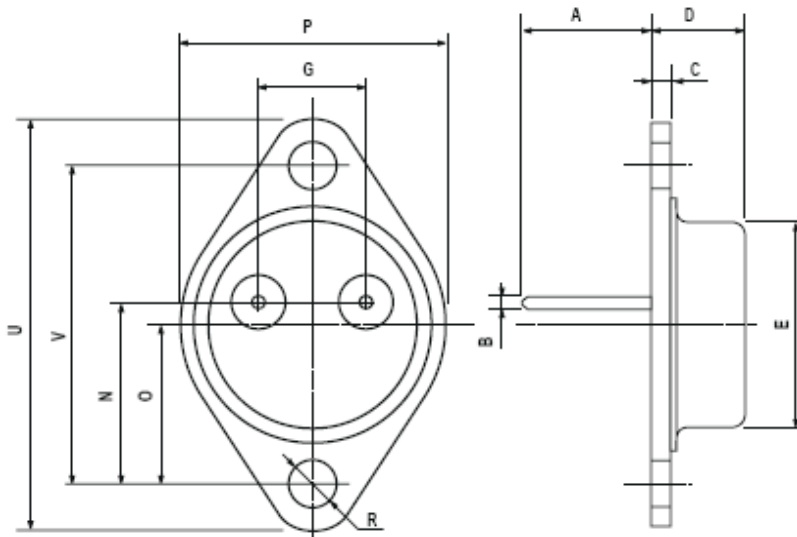
Symbol	Ratings	Value	Unit
R_{thJC}	Thermal Resistance, Junction to Case	1	°C/W



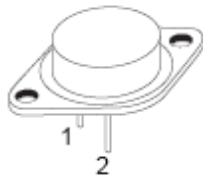
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MECHANICAL DATA CASE TO-3

DIMENSIONS (mm)		
	min	max
A	11	13.10
B	0.97	1.15
C	1.5	1.65
D	8.32	8.92
F	19	20
G	10.70	11.1
N	16.50	17.20
P	25	26
R	4	4.09
U	38.50	39.30
V	30	30.30



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector



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