



NPN 2N3442 – 2N4347

HIGH POWER INDUSTRIAL TRANSISTORS

NPN silicon transistors in Jedec TO-39 metal case.

They are designed for applications in industrial and commercial equipment including high fidelity audio amplifiers, series and shunts regulators and power switches.

Low Collector-Emitter Saturation Voltage.

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit	
V_{CEO}	Collector-Emitter Voltage	2N4347	120	V	
		2N3442	140		
V_{CB}	Collector-Base Voltage	2N4347	140	V	
		2N3442	160		
V_{EB}	Emitter-Base Voltage	2N4347	7	V	
		2N3442			
I_C	Collector Current	Continuous	2N4347	5	A
			2N3442	10	
		Peak	2N4347	10	
			2N3442	15 (**)	
I_B	Base Current	Continuous	2N4347	3	A
			2N3442	7	
		Peak	2N4347	8	
			2N3442	-	
P_D	Total Device Dissipation	@ $T_C = 25^\circ$	2N4347	100	W
			2N3442	117	
		Derate above 25°	2N4347	0.57	W/°C
			2N3442	0.67	
T_J	Junction Temperature	2N4347	-65 to +200	°C	
		2N3442			
T_S	Storage Temperature	2N4347	-65 to +200	°C	
		2N3442			

(**) This data guaranteed in addition to JEDEC registered data.

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
R_{thJC}	Thermal Resistance, Junction to Case	2N4347	1.75	°C/W
		2N3442	1.5	

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

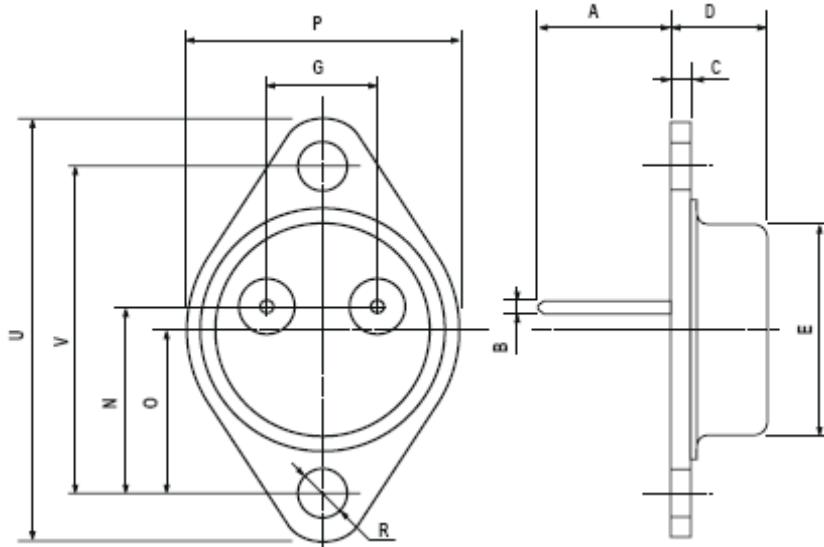
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage (*)	$I_C=200\text{ mA}, I_B=0$	2N4347	120	-	-	V
			2N3442	140	-	-	
I_{CEO}	Collector-Emitter Current	$V_{CE}=100\text{ V}, I_B=0$	2N4347	-	-	200	mA
		$V_{CE}=140\text{ V}, I_B=0$	2N3442			200	
I_{CEX}	Collector Cutoff Current	$V_{CE}=125\text{ V}, V_{EB(off)}=1.5\text{ V}$	2N4347	-	-	2.0	mA
		$V_{CE}=120\text{ V}, V_{EB(off)}=1.5\text{ V}$				10	
		$V_{CE}=140\text{ V}, V_{EB(off)}=1.5\text{ V}$	2N3442	-	-	5.0	
		$V_{CE}=140\text{ V}, V_{EB(off)}=1.5\text{ V}$				30	
I_{EBO}	Emitter Cutoff Current	$V_{BE}=7\text{ V}, I_C=0$	2N4347	-	-	5.0	mA
			2N3442				
h_{FE}	DC Current Gain	$I_C=2\text{ A}, V_{CE}=4.0\text{ V}$	2N4347	15	-	60	-
		$I_C=5\text{ A}, V_{CE}=4\text{ V}$					
		$I_C=3\text{ A}, V_{CE}=4\text{ V}$	2N3442	20	-	70	
		$I_C=10\text{ A}, V_{CE}=4\text{ V}$					
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage	$I_C=2\text{ A}, I_B=200\text{ mA}$	2N4347	-	-	1.0	V
		$I_C=5\text{ A}, I_B=630\text{ mA}$				2.0	
		$I_C=10\text{ A}, I_B=200\text{ mA}$	2N3442	-	-	5.0	
$V_{BE(on)}$	Base-Emitter Voltage	$I_C=2\text{ A}, V_{CE}=4\text{ V}$	2N4347	-	-	2.0	V
		$I_C=5\text{ A}, V_{CE}=4\text{ V}$				3.0	
		$I_C=10\text{ A}, V_{CE}=4\text{ V}$	2N3442	-	-	5.7	
h_{fe}	Small Signal Current Gain	$V_{CE}=4\text{ V}, I_C=500\text{ mA}$ $f=1\text{ kHz}$	2N4347	40	-	-	-
		$V_{CE}=4\text{ V}, I_C=2\text{ A}$ $f=1\text{ kHz}$	2N3442	12	-	72	
$V_{CER(SUS)}$	Collector-Emitter Sustaining Voltage $R_{BE}=100\Omega$	$I_C=100\text{ mA}$	2N4347	130	-	-	V
		$I_C=200\text{ mA}$					
		$I_C=100\text{ mA}$	2N3442	-	-	-	
		$I_C=200\text{ mA}$				150	
f_T	Current Gain – Bandwidth Product	$V_{CE}=4\text{ V}, I_C=500\text{ mA}$ $f_{test}=50\text{ kHz}$	2N4347	200	-	-	kHz
		$V_{CE}=4\text{ V}, I_C=500\text{ mA}$ $f_{test}=50\text{ kHz}$	2N3442	80	-	-	
$I_{s/b}$	Second Breakdown Collector Current	$V_{CE}=67\text{ V}, I_C=1.5\text{ A}$	2N4347	1.0	-	-	s
		$V_{CE}=78\text{ V}, I_C=1.5\text{ A}$	2N3442	1.0	-	-	

(*) Pulse Width $\approx 300\ \mu\text{s}$, Duty Cycle $\angle 2.0\%$

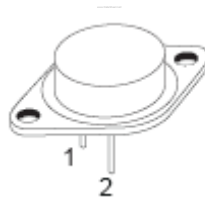
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MECHANICAL DATA CASE TO-3

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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