

2N3442
2N4347

HIGH POWER INDUSTRIAL TRANSISTORS

NPN silicon transistors 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 –
 $V_{CE(sat)} = 1.0 \text{ Vdc (Max) @ } I_C = 2.0 \text{ Adc} - 2N4347$
- Collector-Emitter Sustaining Voltage-
 $V_{CEO(sus)} = 120 \text{ Vdc (Min) - 2N4347}$
 $140 \text{ Vdc (Min) - 2N3442}$
- Excellent Second-Breakdown Capability

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit		
V_{CEO}	#Collector-Emitter Voltage	2N4347	120	V	
		2N3442	140		
V_{CB}	Collector-Base Voltage	2N4347	140	Vdc	
		2N3442	160		
V_{EB}	Emitter-Base Voltage	2N4347	7.0	Vdc	
		2N3442	7.0		
I_C	Collector Current	Continuous	2N4347	5.0	Adc
			2N3442	10	
		Peak	2N4347	10	
			2N3442	15 (**)	
I_B	Base Current	Continuous	2N4347	3.0	Adc
			2N3442	7.0	
		Peak	2N4347	8.0	
			2N3442	-	
P_D	Total Device Dissipation	@ $T_C = 25^\circ$	2N4347	100	Watts W/°C
			2N3442	117	
		Derate above 25°	2N4347	0.57	
			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.

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THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS

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

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage (1)	$I_C=200\text{ mAdc}, I_B=0$	2N4347	120	-	-	Vdc
			2N3442	140	-	-	
$V_{CER(SUS)}$ $R_{BE}=100\Omega$	Collector-Emitter Sustaining Voltage	$I_C=0.1\text{ Adc}$	2N4347	130	-	-	V
		$I_C=0.2\text{ Adc}$	2N3442	150	-	-	
I_{CEO}	Collector-Emitter Current	$V_{CE}=100\text{ Vdc}, I_B=0$	2N4347	-	-	200	mAdc
		$V_{CE}=140\text{ Vdc}, I_B=0$	2N3442	-	-	200	
I_{CEX}	Collector Cutoff Current	$V_{CE}=125\text{ Vdc}, V_{EB(off)}=1.5\text{ Vdc}$	2N4347	-	-	2.0	mAdc
		$V_{CE}=120\text{ Vdc}, V_{EB(off)}=1.5\text{ Vdc}, T_C = 150^{\circ}\text{C}$				10	
		$V_{CE}=140\text{ Vdc}, V_{EB(off)}=1.5\text{ Vdc}$	2N3442	-	-	5.0	
		$V_{CE}=140\text{ Vdc}, V_{EB(off)}=1.5\text{ Vdc}, T_C = 150^{\circ}\text{C}$				30	
I_{EBO}	Emitter Cutoff Current	$V_{BE}=7.0\text{ Vdc}, I_C=0$	2N4347 2N3442	-	-	5.0	mAdc
h_{FE}	DC Current Gain	$I_C=2.0\text{ Adc}, V_{CE}=4.0\text{ Vdc}$	2N4347	-	-	15	-
		$I_C=5.0\text{ Adc}, V_{CE}=4.0\text{ Vdc}$				10	
		$I_C=3.0\text{ Adc}, V_{CE}=4.0\text{ Vdc}$	2N3442	-	-	20	
		$I_C=10\text{ Adc}, V_{CE}=4.0\text{ Vdc}$				4.0	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage	$I_C=2.0\text{ Adc}, I_B=200\text{ mAdc}$	2N4347	-	-	1.0	Vdc
		$I_C=5.0\text{ Adc}, I_B=0.63\text{ Adc}$				2.0	
		$I_C=3.0\text{ Adc}, I_B=0.3\text{ Adc}$	2N3442	-	-	1.0	
		$I_C=10\text{ Adc}, I_B=0.2\text{ Adc}$				5.0	

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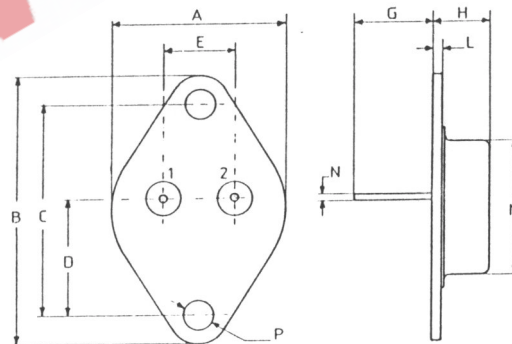
Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
$V_{BE(on)}$	Base-Emitter Voltage	$I_C=2.0 \text{ A dc}, V_{CE}=4.0 \text{ V dc}$	2N4347	-	-	2.0	Vdc
		$I_C=5.0 \text{ A dc}, V_{CE}=4.0 \text{ V dc}$		-	-	3.0	
		$I_C=3.0 \text{ A dc}, V_{CE}=4.0 \text{ V dc}$	2N3442	-	-	1.7	
		$I_C=10 \text{ A dc}, V_{CE}=4.0 \text{ V dc}$		-	-	5.7	
h_{fe}	Small Signal Current Gain	$V_{CE}=4.0 \text{ V dc}, I_C=0.5 \text{ A dc}, f=1.0 \text{ kHz}$	2N4347	40	-	-	-
		$V_{CE}=4.0 \text{ V dc}, I_C=2.0 \text{ A dc}, f=1.0 \text{ kHz}$	2N3442	12	-	72	-
f_T	Current Gain – Bandwidth Product (2)	$V_{CE}=4.0 \text{ V dc}, I_C=0.5 \text{ A dc}, f_{test} = 50 \text{ kHz}$	2N4347	200	-	-	kHz
		$V_{CE}=4.0 \text{ V dc}, I_C=2.0 \text{ A dc}, f_{test} = 40 \text{ kHz}$	2N3442	80	-	-	
$I_{s/b}$	Second Breakdown Collector Current	$V_{CE}=67 \text{ V dc}, I_C=1.5 \text{ A dc}$	2N4347	1.0	-	-	s
		$V_{CE}=78 \text{ V dc}, I_C=1.5 \text{ A dc}$	2N3442	1.0	-	-	

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

(2) $f_T = |h_{fe}| * f_{test}$

MECHANICAL DATA CASE TO-3

DIMENSIONS		
	mm	inches
A	25,51	1,004
B	38,93	1,53
C	30,12	1,18
D	17,25	0,68
E	10,89	0,43
G	11,62	0,46
H	8,54	0,34
L	1,55	0,6
M	19,47	0,77
N	1	0,04
P	4,06	0,16



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector

Information furnished is believed to be accurate and reliable. However, CS assumes no responsibility for the consequences of use of such information nor for errors that could appear.

Data are subject to change without notice.