

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Ratings	Symbol	2N3441	Unit
Collector-Emitter Voltage	V_{CEO}	140	Vdc
Collector-Base Voltage	V_{CBO}	160	Vdc
Collector-Emitter Voltage	V_{CER}	150	Vdc
Emitter-Base Voltage	V_{EBO}	7.0	Vdc
Base Current	I_B	2.0	Adc
Collector Current	I_C	3.0	Adc
Total Power Dissipation $T_A = 25^\circ\text{C}^{(1)}$ $T_C = 100^\circ\text{C}^{(2)}$	P_T	3.0 25	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$
Maximum Thermal Resistance Junction to Case Junction to Ambient	$R_{\theta JC}$ $R_{\theta JA}$	7.0 58.5	$^\circ\text{C/W}$

Note 1: Derate linearly @ 17.1mW/ $^\circ\text{C}$ for $T_A > 25^\circ\text{C}$

Note 2: Derate linearly @ 143mW/ $^\circ\text{C}$ for $T_C > 25^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Characteristics	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Voltage $I_C = 100\text{mA}$	$V_{(BR)CEO}$	140		Vdc
Collector-Emitter Breakdown Voltage $I_C = 100\text{mA}, R_{BE} = 100\Omega$	$V_{(BR)CER}$	150		Vdc
Collector-Emitter Breakdown Voltage $I_C = 100\text{mA}, V_{BE} = -1.5\text{V}$	$V_{(BR)CEX}$	160		Vdc
Collector-Base Cutoff Current $V_{CB} = 140\text{Vdc}, V_{BE} = -1.5\text{Vdc}$	I_{CEX}		1.0	mAdc
Emitter-Base Cutoff Current $V_{EB} = 7.0\text{Vdc}$	I_{EBO}		1.0	mAdc
Forward Current Transfer Ratio $I_C = 50\text{mAdc}, V_{CE} = 4.0\text{Vdc}$ $I_C = 0.5\text{Adc}, V_{CE} = 4.0\text{Vdc}$ $I_C = 1.0\text{Adc}, V_{CE} = 4.0\text{Vdc}$	h_{FE}	50 25 10	100	
Collector-Emitter Saturation Voltage $I_C = 0.5\text{Adc}, I_B = 50\text{mAdc}$	$V_{CE(sat)}$		1.0	Vdc
Base-Emitter Voltage $I_C = 0.5\text{Adc}, V_{CE} = 4.0\text{C}$	$V_{BE(ON)}$		1.7	Vdc

Characteristics	Symbol	Min.	Max.	Unit
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short Circuit Forward Current Transfer Ratio $I_C = 0.5 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}, f = 100 \text{ kHz}$	$ h_{FE} $	4.0	40	
Small Signal Short Circuit Forward Transfer Ratio $I_C = 0.5 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$	h_{fe}	15	300	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{obo}		300	pF
SWITCHING CHARACTERISTICS				
Turn-On Time $V_{CC} = 30 \text{ Vdc}, I_C = 0.5 \text{ Adc}, I_B = 50 \text{ mAdc}$	t_{on}		8.0	μs
Turn-Off Time $V_{CC} = 30 \text{ Vdc}, I_C = 0.5 \text{ Adc}, I_B = -I_B = 50 \text{ mAdc}$	t_{off}		15	μs
SAFE OPERATING AREA				
Dc Tests $T_C = 25^\circ\text{C}, 1 \text{ cycle}, t = 1.0\text{s}$ Test 1 $V_{CE} = 8.33 \text{ Vdc}, I_C = 3.0 \text{ Adc}$ Test 2 $V_{CE} = 30 \text{ Vdc}, I_C = 833 \text{ mAdc}$ Test 3 $V_{CE} = 140 \text{ Vdc}, I_C = 178.5 \text{ mAdc}$				

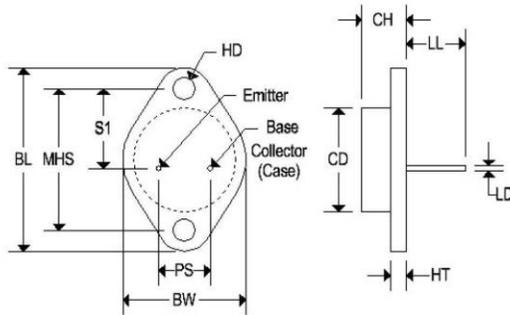
Note 3: Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$

2N3441

NPN SILICON POWER TRANSISTORS

MECHANICAL CHARACTERISTICS

Case	TO-66
Marking	Alpha-numeric
Polarity	See below



Dim	TO-66			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	1.205	1.280	30.60	32.50
CD	0.445	0.557	11.303	14.148
CH	0.257	0.284	6.540	7.220
LL	0.374	0.413	9.500	10.50
BW	0.680	0.727	17.26	18.46
LD	0.030	0.036	0.760	0.920
HT	0.054	0.065	1.380	1.650
MHS	0.951	0.976	24.16	24.78
S1	0.545	0.614	13.84	15.60
HD	0.131	0.154	3.320	3.920
PS	0.191	0.210	4.860	5.340