

## NPN POWER SILICON SWITCHING TRANSISTOR

Qualified per MIL-PRF-19500/613

### DEVICES

**2N7373**

### LEVELS

**JAN  
 JANTX  
 JANTXV  
 JANS**

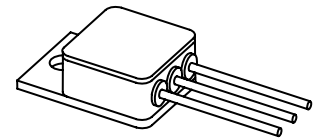
### ABSOLUTE MAXIMUM RATINGS ( $T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	80	Vdc
Collector-Base Voltage	$V_{CBO}$	100	Vdc
Emitter-Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current	$I_C$	5.0	A <sub>dc</sub>
Total Power Dissipation @ $T_A = +25^\circ\text{C}$ <sup>(1)</sup> @ $T_C = +25^\circ\text{C}$ <sup>(2)</sup>	$P_T$	4.0 58	W
Operating & Storage Junction Temperature Range	$T_j, T_{stg}$	-65 to +200	$^\circ\text{C}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3	$^\circ\text{C}/\text{W}$

- 1) Derate linearly 22.8mW/ $^\circ\text{C}$  for  $T_A > 25^\circ\text{C}$
- 2) Derate linearly 331mW/ $^\circ\text{C}$  for  $T_C > 25^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS ( $T_A = +25^\circ\text{C}$ , unless otherwise noted)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage $I_C = 100\text{mA}_{dc}$	$V_{(BR)CEO}$	80		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 60\text{Vdc}, V_{BE} = 0\text{Vdc}$ $V_{CE} = 100\text{Vdc}, V_{BE} = 0\text{Vdc}$	$I_{CES1}$ $I_{CES2}$		1.0 1.0	$\mu\text{A}_{dc}$ mA <sub>dc</sub>
Collector-Emitter Cutoff Current $V_{CE} = 40\text{Vdc}, I_B = 0$	$I_{CEO}$		50	$\mu\text{A}_{dc}$
Emitter-Base Cutoff Current $V_{EB} = 4.0\text{Vdc}$ $V_{EB} = 5.5\text{Vdc}$	$I_{EBO1}$ $I_{EBO2}$		1.0 1.0	$\mu\text{A}_{dc}$ mA <sub>dc</sub>



**TO-254AA**

**PIN 1 = BASE  
 PIN 2 = COLLECTOR  
 PIN 3 = EMITTER**

**SEE FIGURE 1**

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### ELECTRICAL CHARACTERISTICS ( $T_A = +25^\circ\text{C}$ , unless otherwise noted) (CONT.)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
<b>ON CHARACTERISTICS</b> <sup>(3)</sup>				
Forward-Current Transfer Ratio $I_C = 0.05\text{A dc}$ , $V_{CE} = 5.0\text{V dc}$ $I_C = 2.5\text{A dc}$ , $V_{CE} = 5.0\text{V dc}$ $I_C = 5.0\text{A dc}$ , $V_{CE} = 5.0\text{V dc}$	$h_{FE1}$ $h_{FE2}$ $h_{FE3}$	50 70 40	--- 200 ---	
Base-Emitter Non-Saturated Voltage $V_{CE} = 5.0\text{V dc}$ , $I_C = 2.5\text{A dc}$	$V_{BE}$		1.45	Vdc
Base-Emitter Saturation Voltage $I_C = 2.5\text{A dc}$ , $I_B = 0.25\text{A dc}$ $I_C = 5.0\text{A dc}$ , $I_B = 0.5\text{A dc}$	$V_{BE(sat)1}$ $V_{BE(sat)2}$		1.45 2.2	Vdc
Collector-Emitter Saturation Voltage $I_C = 2.5\text{A dc}$ , $I_B = 0.25\text{A dc}$ $I_C = 5.0\text{A dc}$ , $I_B = 0.5\text{A dc}$	$V_{CE(sat)1}$ $V_{CE(sat)2}$		0.75 1.5	Vdc

### DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Common Emitter Small Signal, Short Circuit Forward Current Transfer Ratio $V_{CE} = 5\text{V dc}$ , $I_C = 100\text{mA dc}$ , $f = 1\text{kHz}$	$h_{fe}$	50		
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 0.5\text{A dc}$ , $V_{CE} = 5\text{V dc}$ , $f = 10\text{MHz}$	$ h_{fe} $	7.0		
Output Capacitance $V_{CB} = 10\text{V dc}$ , $I_E = 0$ , $100\text{kHz} \leq f \leq 1.0\text{MHz}$	$C_{obo}$		250	pF

### SAFE OPERATING AREA

#### DC Tests

$T_C = +25^\circ\text{C}$ , 1 Cycle,  $t = 1\text{s}$

#### Test 1

$V_{CE} = 12\text{V dc}$ ,  $I_C = 5.0\text{A dc}$

#### Test 2

$V_{CE} = 32\text{V dc}$ ,  $I_C = 1.5\text{A dc}$

#### Test 3

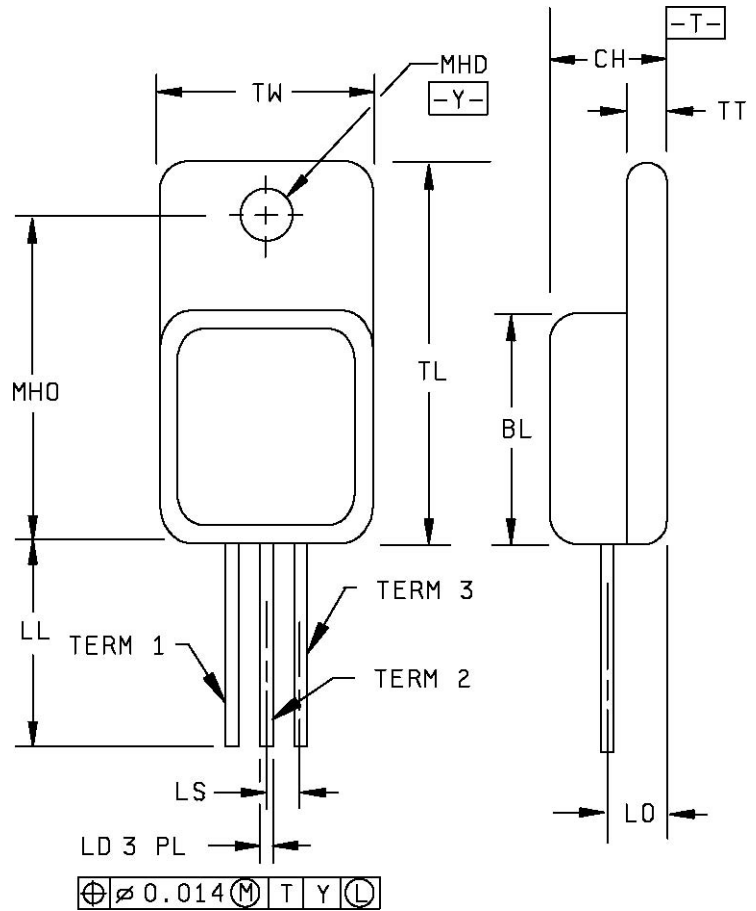
$V_{CE} = 80\text{V dc}$ ,  $I_C = 100\text{mA dc}$

(3) Pulse Test: Pulse Width =  $300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

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Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	.535	.545	13.59	13.84
CH	.249	.260	6.32	6.60
LD	.035	.045	0.89	1.14
LL	.510	.570	12.95	14.48
LO	.150 BSC		3.81 BSC	
LS	.150 BSC		3.81 BSC	
MHD	.139	.149	3.53	3.78
MHO	.665	.685	16.89	17.40
TL	.790	.800	20.07	20.32
TT	.040	.050	1.02	1.27
TW	.535	.545	13.59	13.84
Term 1	Base			
Term 2	Collector			
Term 3	Emitter			



### NOTES:

1. Dimensions are in inches.
- \* 2. Millimeters are given for general information only.
3. All terminals are isolated from case.
4. In accordance with ASME Y14.5M, diameters are equivalent to  $\phi x$  symbology

**FIGURE 1: PACKAGE DIMENSIONS**