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TECHNICAL DATA SHEET

PNP POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/441

DEVICES

2N3740 2N3741

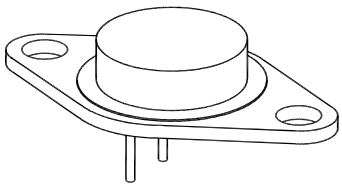
LEVELS

JAN
JANTX
JANTXV
JANS

ABSOLUTE MAXIMUM RATINGS *(T_C = +25°C unless otherwise noted)*

Parameters / Test Conditions	Symbol	2N3740	2N3741	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CBO}	60	80	Vdc
Emitter-Base Voltage	V_{EBO}	7.0		Vdc
Base Current	I_B	2.0		Adc
Collector Current	I_C	4.0		Adc
Total Power Dissipation @ T_A = +25°C (1) @ T_C = +100°C	P_T	25 14		W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		°C
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	7.0		°C/W

Note: (1) Derate linearly @ 143 mW/°C for T_C > +25°C



TO-66 (TO-213AA)

* See Appendix A for Package Outline

ELECTRICAL CHARACTERISTICS *(T_A = +25°C, unless otherwise noted)*

Parameters / Test Conditions		Symbol	Min.	Max.	Unit
OFF CHARACTERTICS					
Collector-Emitter Breakdown Voltage I_C = 100mAdc	2N3740 2N3741	$V_{(BR)CEO}$	60 80		Vdc
Collector-Emitter Cutoff Current V_{CE} = 40Vdc V_{CE} = 60Vdc	2N3740 2N3741	I_{CEO}		10 10	µAdc
Collector-Emitter Cutoff Current V_{CE} = 60Vdc, V_{BE} = 1.5Vdc V_{CE} = 80Vdc, V_{BE} = 1.5Vdc	2N3740 2N3741	I_{CEX}		300 300	ηAdc
Collector-Base Cutoff Current V_{CB} = 60Vdc V_{CB} = 80Vdc	2N3740 2N3741	I_{CBO}		100 100	ηAdc
Emitter-Base Cutoff Current V_{EB} = 7.0Vdc		I_{EBO}		100	ηAdc

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ELECTRICAL CHARACTERISTICS *(T_A = +25°C, unless otherwise noted)*

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS (2)				
Forward-Current Transfer Ratio I_C = 100mAdc, V_{CE} = 1.0Vdc I_C = 250mAdc, V_{CE} = 1.0Vdc I_C = 500mAdc, V_{CE} = 1.0Vdc I_C = 1.0Adc, V_{CE} = 1.0Vdc I_C = 4.0Adc, V_{CE} = 5.0Vdc	h_{FE}	 40 30 20 10 3.0	 120 	
Collector-Emitter Saturation Voltage I_C = 250mAdc, I_B = 25mAdc I_C = 1.0Adc, I_B = 125mAdc	$V_{CE(sat)}$		 0.4 0.6	Vdc
Base-Emitter Voltage I_C = 250mAdc, V_{CE} = 1.0Vdc	$V_{BE(on)}$		1.0	Vdc

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 100mAdc, V_{CE} = 10Vdc, f = 5.0MHz	$\|h_{fe}\|$	1.0	12	
Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 50mAdc, V_{CE} = 10Vdc, f = 1.0kHz	h_{fe}	25	250	
Output Capacitance V_{CB} = 10Vdc, I_E = 0, 100kHz ≤ f ≤ 1.0MHz	C_{obo}		100	pF

SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Turn-On Time V_{CC} = 30Vdc; I_C = 1.0Adc; I_B = 0.1Adc	t_{on}		400	µs
Turn-Off Time V_{CC} = 30Vdc; I_C = 1.0Adc; I_{B1} = I_{B2} = 0.1Adc	t_{off}		1.0	µs

SAFE OPERATING AREA

DC Tests
T_C = +25°C, 1 Cycle, t = 1.0s
Test 1
V_{CE} = 6.25Vdc, I_C = 4.0Adc
Test 2
V_{CE} = 20Vdc, I_C = 1.25Adc
Test 3
V_{CE} = 50Vdc, I_C = 150mAdc 2N3740
V_{CE} = 65Vdc, I_C = 150mAdc 2N3741

(2) Pulse Test: Pulse Width = 300µs, Duty Cycle ≤ 2.0%.

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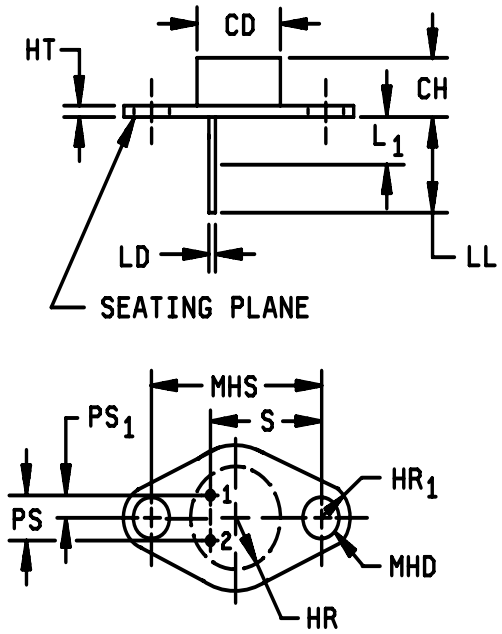
PACKAGE DIMENSIONS



Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD		.620		15.75	9
CH	.250	.340	6.35	8.64	
HT	.050	.075	1.27	1.91	
HR		.350		8.89	
HR_1	.115	.145	2.92	3.68	5
LD	.028	.034	0.71	0.86	4, 8, 9
LL	.360	.500	9.14	12.70	4, 8
L_1		.050		1.27	4, 8
MHD	.142	.152	3.61	3.86	6, 9
MHS	.958	.962	24.33	24.43	
PS	.190	.210	4.83	5.33	3
PS_1	.093	.107	2.36	2.72	3
S	.570	.590	14.48	14.99	3

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. These dimensions should be measured at points .050 to .055 inch (1.27 to 1.40 mm) below seating plane. When gauge is not used, measurement will be made at seating plane.
4. Both terminals.
5. At both ends.
6. Two holes.
7. The collector shall be electrically connected to the case.
8. LD applies between L1 and LL. Lead diameter shall not exceed twice LD within L1.
9. In accordance with ASME Y14.5M, diameters are equivalent to ϕ symbology.
10. Lead 1 is the emitter, lead 2 is the base, collector is the case.

FIGURE 1. Physical dimensions, TO-66 (2N3740, 2N3741)

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