

NPN Power Silicon Transistor

2N3715 & 2N3716



Features

- Available in JAN, JANTX, and JANTXV per MIL-PRF-19500/408
- TO-3 (TO-204AA) Package



Maximum Ratings

Ratings	Symbol	2N3715	2N3716	Units
Collector - Emitter Voltage	V_{CEO}	60	80	Vdc
Collector - Base Voltage	V_{CBO}	80	100	Vdc
Emitter - Base Voltage	V_{EBO}	7.0		Vdc
Base Current	I_B	4.0		Adc
Collector Current	I_C	10		Adc
Total Power Dissipation @ $T_A = 25\text{ }^\circ\text{C}$ ⁽¹⁾	P_T	5.0		W
		117.0		W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$

1) Derate linearly @ 28.57 mW / $^\circ\text{C}$ for $T_A > 25\text{ }^\circ\text{C}$

Thermal Characteristics

Characteristics	Symbol	Maximum	Units
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$

Electrical Characteristics

OFF Characteristics		Symbol	Minimum	Maximum	Units
Collector - Emitter Breakdown Voltage $I_C = 10\text{ mAdc}$	2N3715	$V_{(BR)CEO}$	60	---	Vdc
	2N3716		80		
Collector - Base Cutoff Current $V_{CB} = 80\text{ Vdc}$ $V_{CB} = 100\text{ Vdc}$	2N3715	I_{CBO}	---	10	μAdc
	2N3716		10		
Emitter - Base Cutoff Current $V_{EB} = 7.0\text{ Vdc}$		I_{EBO}	---	1.0	mAdc
Collector - Emitter Cutoff Current $V_{BE} = -1.5\text{ Vdc}, V_{CE} = 60\text{ Vdc}$ $V_{BE} = -1.5\text{ Vdc}, V_{CE} = 80\text{ Vdc}$	2N3715	I_{CEX}	---	10	μAdc
	2N3716		10		
Collector - Emitter Cutoff Current $V_{CB} = 60\text{ Vdc}$ $V_{CB} = 80\text{ Vdc}$	2N3715	I_{CES}	---	10	μAdc
	2N3716		10		

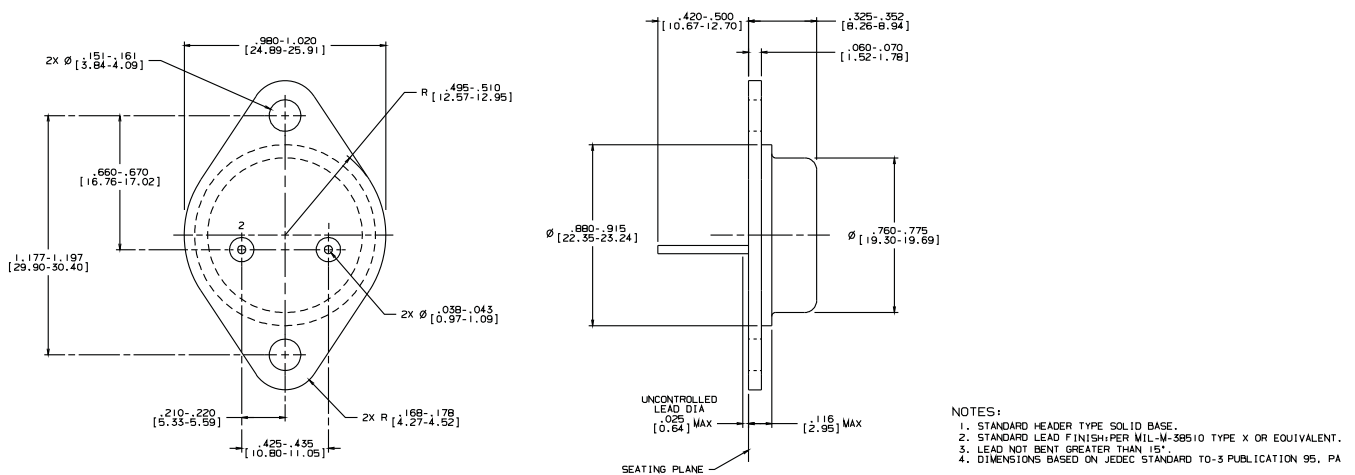


Electrical Characteristics -con't

ON Characteristics ⁽³⁾	Symbol	Mimumum	Maximum	Units
Forward Current Transfer Ratio $I_C = 1.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 3.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 5.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 10.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$	H_{FE}	50 30 10 5	150 120 --- ---	
Collector - Emitter Saturation Voltage $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$ $I_C = 10.0 \text{ Adc}, I_B = 2.0 \text{ Adc}$	$V_{CE(sat)}$	--- ---	1.0 2.5	Vdc
Base - Emitter Saturation Voltage $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$ $I_C = 10.0 \text{ Adc}, I_B = 2.0 \text{ Adc}$	$V_{BE(sat)}$	--- ---	1.5 3.0	Vdc
DYNAMIC Characteristics				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 0.5 \text{ Adc}, V_{CE} = 10.0 \text{ Vdc}, f = 1.0 \text{ kHz}$	$ h_{fe} $	4.0	20.0	
Forward Current Transfer Ratio $I_C = 0.5 \text{ Adc}, V_{CE} = 10.0 \text{ Vdc}, f = 1.0 \text{ MHz}$	h_{fe}	30	300	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$	C_{obo}	---	500	pF
SAFE OPERATING AREA				
DC Tests: $T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$ Test 1: $V_{CE} = 15.0 \text{ Vdc}, I_C = 10 \text{ Adc}$ Test 2: $V_{CE} = 40.0 \text{ Vdc}, I_C = 3.75 \text{ Adc}$ Test 3: $V_{CE} = 55.0 \text{ Vdc}, I_C = 0.9 \text{ Adc}$ 2N3715 $V_{CE} = 65.0 \text{ Vdc}, I_C = 0.9 \text{ Adc}$ 2N3716				

(3) Pulse Test: Pulse Width = 300 μs , Duty Cycle ~ 2.0 %.

Outline Drawing



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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.