



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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NPN High Power Silicon Transistors

2N6676 & 2N6678

Features

- Available in JAN, JANTX, and JANTXV per MIL-PRF-19500/538
- TO-3 (TO-204AA) Package



Maximum Ratings

Ratings	Symbol	2N6676	2N6678	Units
Collector - Emitter Voltage	V_{CEO}	300	400	Vdc
Collector - Base Voltage	V_{CBO}	450	650	Vdc
Collector - Base Voltage	V_{CEX}	450	650	Vdc
Emitter - Base Voltage	V_{EBO}	8.0		Vdc
Base Current	I_B	5.0		Adc
Collector Current	I_C	15		Adc
Total Power Dissipation @ $T_A = +25\text{ }^\circ\text{C}$ (1) @ $T_A = +25\text{ }^\circ\text{C}$	P_T	6.0(1) 175	6.0(1) 175	W W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200		$^\circ\text{C}$

Thermal Characteristics

Characteristics	Symbol	Maximum	Units
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.0	$^\circ\text{C}/\text{W}$

1) Derate linearly @ 34.2 mW/ $^\circ\text{C}$ for $T_A > +25\text{ }^\circ\text{C}$

Electrical Characteristics

OFF Characteristics	Symbol	Mimimum	Maximum	Units
Collector - Emitter Breakdown Voltage $I_C = 200\text{ mAdc}$ 2N6676 2N6678	$V_{(BR)CEO}$	300 400	---	Vdc
Collector - Emitter Cutoff Current $V_{CE} = 450\text{ Vdc}, V_{BE} = -1.5\text{ Vdc}$ $V_{CE} = 650\text{ Vdc}, V_{BE} = -1.5\text{ Vdc}$ 2N6676 2N6678	I_{CEX}	---	1.0	μAdc
Emitter - Base Cutoff Current $V_{EB} = 7.0\text{ Vdc}$	I_{EBO}	---	2.0	mAdc
Collector - Base Cutoff Current $V_{CB} = 450\text{ Vdc}$ $V_{CB} = 650\text{ Vdc}$ 2N6676 2N6678	I_{CBO}	---	1.0 1.0	mAdc

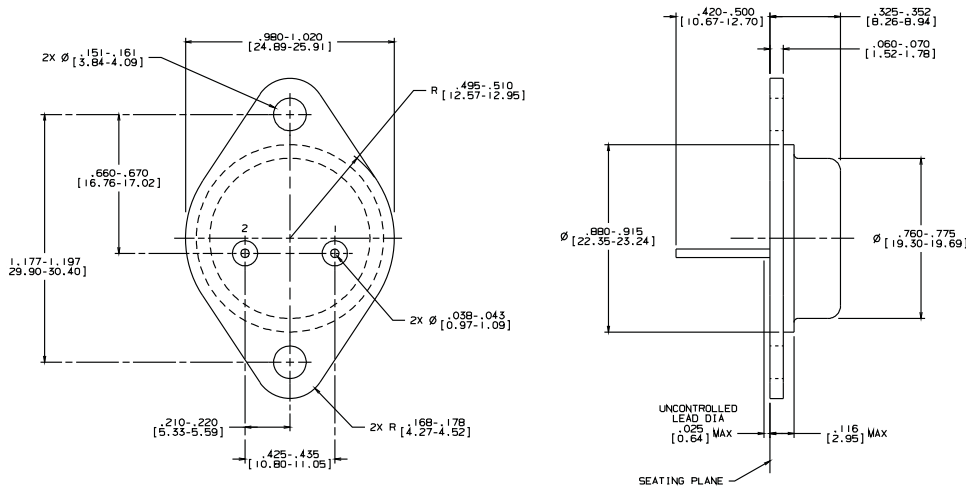


Electrical Characteristics -con't

ON Characteristics (2)		Symbol	Minimum	Maximum	Unit
Forward Current Transfer Ratio $I_C = 1.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$ $I_C = 15.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$		H_{FE}	15 8	40 20	
Collector - Emitter Saturation Voltage $I_C = 15.0 \text{ Adc}, I_B = 3.0 \text{ Adc}$		$V_{CE(sat)}$	- - -	1.0	Vdc
Base - Emitter Saturation Voltage $I_C = 15.0 \text{ Adc}, I_B = 3.0 \text{ Vdc}$		$V_{BE(sat)}$	- - -	1.5	Vdc
DYNAMIC Characteristic					
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 1.0 \text{ Adc}, V_{CE} = 10 \text{ Vdc}, f = 5.0 \text{ kHz}$		$ h_{fe} $	3.0	10	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{obo}	150	500	pF
Switching Characteristic					
Delay Time		t_d		0.1	μs
Rise Time		t_r		0.6	μs
Storage Time	See Figure 12 of MIL-PRF-19500/538	t_s		2.5	μs
Fall Time		t_f		0.5	μs
Cross-Over Time		t_c		0.5	μs
SAFE OPERATING AREA					
DC Tests:	$T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$ (See Figure 4 of MIL-PRF-19500/537)				
Test 1:	$V_{CE} = 11.7 \text{ Vdc}, I_C = 15 \text{ Adc}$				
Test 2:	$V_{CE} = 30 \text{ Vdc}, I_C = 5.9 \text{ Adc}$				
Test 3:	$V_{CE} = 100 \text{ Vdc}, I_C = 0.25 \text{ Adc}$				
Test 5:	$V_{CE} = 300 \text{ Vdc}, I_C = 20 \text{ mAdc}$	2N6676			
	$V_{CE} = 400 \text{ Vdc}, I_C = 10 \text{ mAdc}$	2N6678			
Clamped Switching					
$T_A = 25 \text{ }^\circ\text{C}, V_{CC} = 15 \text{ Vdc}$					
$I_C = 15 \text{ Adc}, \text{Clamp Voltage} = 350$		2N6676			
$I_C = 15 \text{ Adc}, \text{Clamp Voltage} = 450$		2N6678			

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

Outline Drawing



- NOTES:
1. STANDARD HEADER TYPE SOLID BASE.
 2. STANDARD LEAD FINISH PER MIL-M-58510 TYPE X OR EQUIVALENT.
 3. LEAD NOT BENT GREATER THAN 15°.
 4. DIMENSIONS BASED ON JEDEC STANDARD TO-3 PUBLICATION 95, PA

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