



NPN High Power Silicon Transistors

2N6674 & 2N6675

Features

- Available in JAN, JANTX, and JANTXV per MIL-PRF-19500/537
- TO-3 (TO-204AA) Package



Maximum Ratings

Ratings	Symbol	2N6674	2N6675	Units
Collector - Emitter Voltage	V_{CEO}	300	400	Vdc
Collector - Base Voltage	V_{CBO}	450	650	Vdc
Collector - Base Voltage	V_{CBX}	450	650	Vdc
Emitter - Base Voltage	V_{EBO}	7.0		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(2) 175	3.0(3) 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 @ 1.0 mW/ $^\circ\text{C}$ for $T_A > +25\text{ }^\circ\text{C}$

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

3) Derate linearly @ 17.1 mW/ $^\circ\text{C}$ for $T_A > +25\text{ }^\circ\text{C}$

Electrical Characteristics

OFF Characteristics	Symbol	Mimimum	Maximum	Units
Collector - Emitter Breakdown Voltage $I_C = 200\text{ mAdc}$ 2N6674 2N6675	$V_{(BR)CEO}$	300 400	---	Vdc
Collector - Emitter Cutoff Current $V_{CE} = 450\text{ Vdc}, V_{BE} = -1.5\text{ Vdc}$ $V_{CE} = 650\text{ Vdc}, V_{BE} = -1.5\text{ Vdc}$ 2N6674 2N6675	I_{CEX}	---	0.1 0.1	Adc
Emitter - Base Cutoff Current $V_{EB} = 7.0\text{ Vdc}$	I_{EBO}	---	2.0	mAdc
Collector - Base Cutoff Current $V_{CB} = 450\text{ Vdc}$ 2N6674	I_{CBO}	---	1.0	mAdc

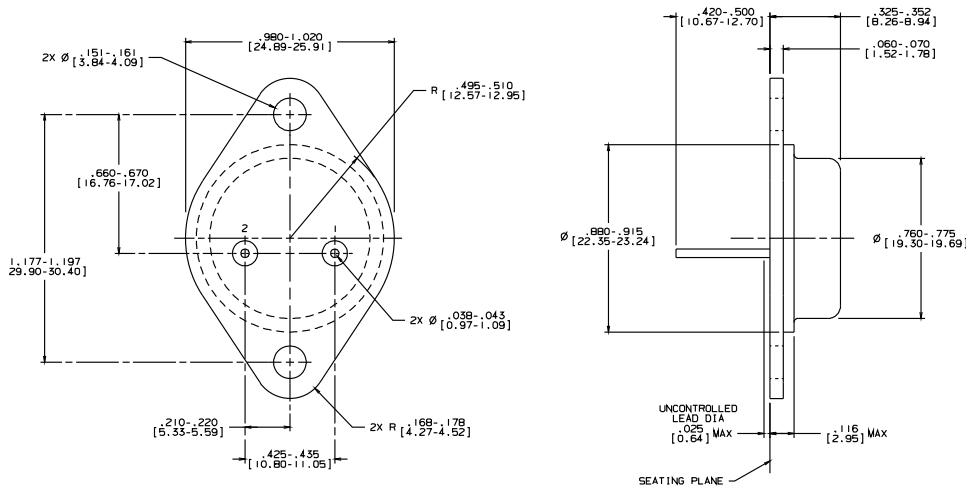


Electrical Characteristics -con't

ON Characteristics (2)				
	Symbol	Minimum	Maximum	Unit
Forward Current Transfer Ratio $I_C = 1.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$ $I_C = 10.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$	H_{FE}	15 8	40 20	
Collector - Emitter Saturation Voltage $I_C = 10.0 \text{ Adc}, I_B = 2.0 \text{ Adc}$ $I_C = 15.0 \text{ Adc}, I_B = 5.0 \text{ Adc}$	$V_{CE(sat)}$	- - - - - -	1.0 5.0	Vdc
Base - Emitter Saturation Voltage $I_C = 1.0 \text{ Adc}, I_B = 2.0 \text{ Vdc}$	$V_{BE(sat)}$	- - -	1.5	Vdc
DYNAMIC Characteristic				
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 0.5 \text{ Adc}, V_{CE} = 10 \text{ Vdc}, f = 1.0 \text{ kHz}$	$ 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 3 of MIL-PRF-19500/537	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 4:	$V_{CE} = 25 \text{ Vdc}, I_C = 7.0 \text{ Adc}$			
TEST 5:	$V_{CE} = 300 \text{ Vdc}, I_C = 20 \text{ mAdc}$	2N6674		
	$V_{CE} = 400 \text{ Vdc}, I_C = 10 \text{ mAdc}$	2N6675		
Clamped Switching	$T_A = 25 \text{ }^\circ\text{C}, V_{CC} = 15 \text{ Vdc}, \text{ Load condition B}, R_{BB1} = 5 \text{ } \Omega, R_{BB2} = 1.5 \text{ } \Omega,$ $V_{BB2} = 5 \text{ Vdc}, L = 50 \text{ } \mu\text{H}, R \text{ of inductor} = 0.05 \text{ } \Omega, R_L = R \text{ of inductor.}$ (See Figure 6 of MIL-PRF-19500/537)			
Clamp Voltage = 350, $I_C = 10 \text{ Adc}$	2N6674			
Clamp Voltage = 450, $I_C = 10 \text{ Adc}$	2N6675			

(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

Aeroflex / Metelics, Inc.

975 Stewart Drive,
Sunnyvale, CA 94085
Tel: (408) 737-8181
Fax: (408) 733-7645

Sales: 888-641-SEMI (7364)

Hi-Rel Components

9 Hampshire Street,
Lawrence, MA 01840
Tel: (603) 641-3800
Fax: (978) 683-3264

www.aeroflex.com/metelics-hirelcomponents

www.aeroflex.com/metelics metelics-sales@aeroflex.com

Aeroflex / Metelics, Inc. reserves the right to make changes to any products and services herein at any time without notice. Consult Aeroflex or an authorized sales representative to verify that the information in this data sheet is current before using this product. Aeroflex does not assume any responsibility or liability arising out of the application or use of any product or service described herein, except as expressly agreed to in writing by Aeroflex; nor does the purchase, lease, or use of a product or service from Aeroflex convey a license under any patent rights, copyrights, trademark rights, or any other of the intellectual rights of Aeroflex or of third parties.

Copyright 2011 Aeroflex / Metelics. All rights reserved.

ISO 9001: 2008 certified companies



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