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TECHNICAL DATA SHEET

N-CHANNEL MOSFET

Qualified per MIL-PRF-19500/543

DEVICES

2N6768 2N6768T1

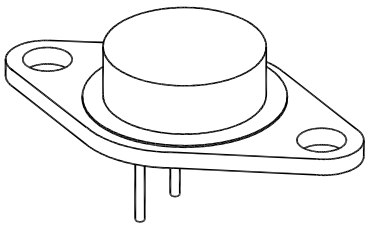
LEVELS

JAN
JANTX
JANTXV

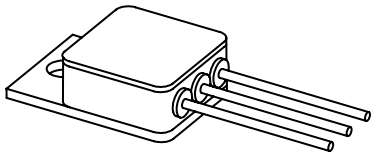
ABSOLUTE MAXIMUM RATINGS *(T_C = +25°C unless otherwise noted)*

Parameters / Test Conditions	Symbol	Value	Unit
Drain – Source Voltage	V_{DS}	400	Vdc
Gate – Source Voltage	V_{GS}	± 20	Vdc
Continuous Drain Current T_C = +25°C	I_{D1}	14	Adc
Continuous Drain Current T_C = +100°C	I_{D2}	9.0	Adc
Max. Power Dissipation T_C = +25°C	P_{tl}	150 (1)	W
Drain to Source On State Resistance	$R_{ds(on)}$	0.3 (2)	Ω
Operating & Storage Temperature	T_{op}, T_{stg}	-55 to +150	°C

Note: (1) Derated Linearly by 1.2 W/°C for T_C > +25°C
(2) V_{GS} = 10Vdc, I_D = 9.0A



2N6768
TO-204AA (TO-3)



2N6768T1 (TO-254AA)

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

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERTICS				
Drain-Source Breakdown Voltage V_{GS} = 0V, I_D = 1mAdc	$V_{(BR)DSS}$	400		Vdc
Gate-Source Voltage (Threshold) $V_{DS} \geq V_{GS}$, I_D = 0.25mA $V_{DS} \geq V_{GS}$, I_D = 0.25mA, T_j = +125°C $V_{DS} \geq V_{GS}$, I_D = 0.25mA, T_j = -55°C	 $V_{GS(th)1}$ $V_{GS(th)2}$ $V_{GS(th)3}$	 2.0 1.0	 4.0 5.0	Vdc
Gate Current V_{GS} = ±20V, V_{DS} = 0V V_{GS} = ±20V, V_{DS} = 0V, T_j = +125°C	 I_{GSS1} I_{GSS2}		 ±100 ±200	nAdc
Drain Current V_{GS} = 0V, V_{DS} = 320V V_{GS} = 0V, V_{DS} = 400V, T_j = +125°C V_{GS} = 0V, V_{DS} = 320V, T_j = +125°C	 I_{DSS1} I_{DSS2} I_{DSS3}		 25 1.0 0.25	 µAdc mAdc mAdc
Static Drain-Source On-State Resistance V_{GS} = 10V, I_{D2} = 9A pulsed V_{GS} = 10V, I_{D1} = 4A pulsed T_j = +125°C V_{GS} = 10V, I_{D2} = 9A pulsed	 $r_{DS(on)1}$ $r_{DS(on)2}$ $r_{DS(on)3}$		 0.3 0.4 0.66	 Ω Ω Ω
Diode Forward Voltage V_{GS} = 0V, I_{D1} = 14A pulsed	V_{SD}		1.7	Vdc

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DYNAMIC CHARACTERISTICS

Parameters / Test Conditions		Symbol	Min.	Max.	Unit
Gate Charge:					
On-State Gate Charge		$Q_{g(on)}$		110	
Gate to Source Charge	V_{GS} = 10V, I_D = 14A	Q_{gs}		18	nC
Gate to Drain Charge	V_{DS} = 50V	Q_{gd}		65	

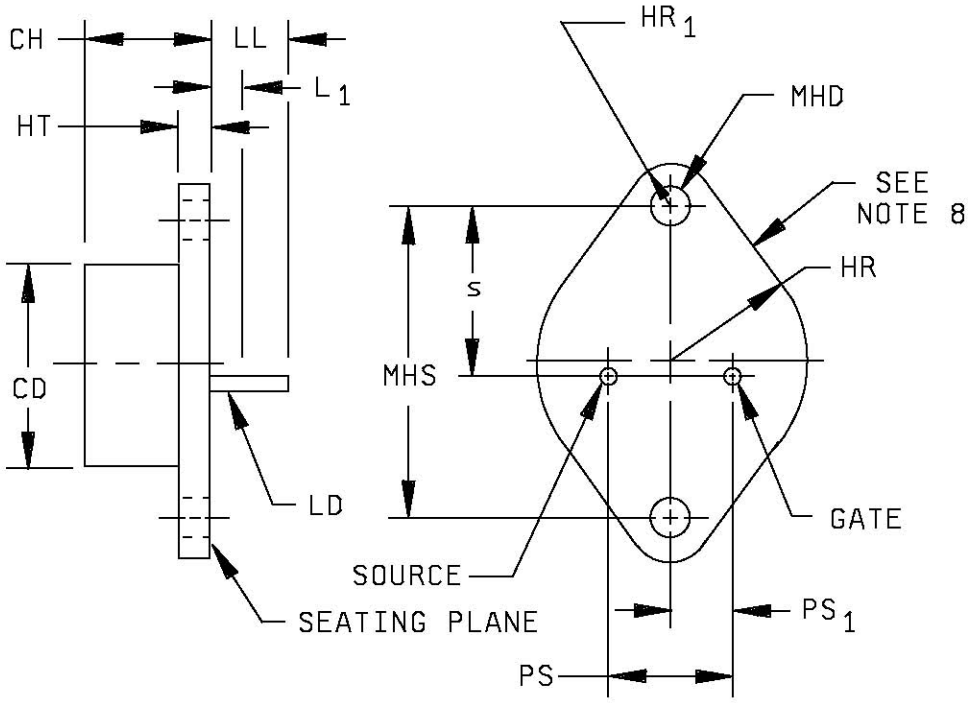
SWITCHING CHARACTERISTICS

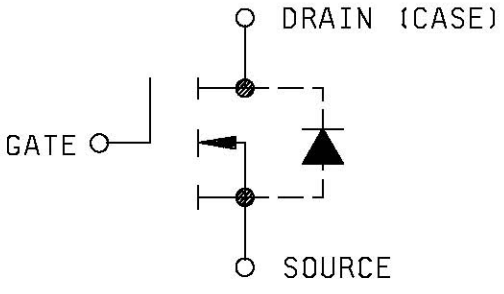
Parameters / Test Conditions		Symbol	Min.	Max.	Unit
Switching time tests:					
Turn-on delay time	I_D = 14A, V_{GS} = 10Vdc,	$t_{d(on)}$		35	
Rinse time	Gate drive impedance = 2.35Ω,	t_r		190	ns
Turn-off delay time	V_{DD} = 200Vdc	$t_{d(off)}$		170	
Fall time		t_f		130	
Diode Reverse Recovery Time	di/dt ≤ 100A/µs, V_{DD} ≤ 30V, I_F = 14A	t_{rr}		1200	ns

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PACKAGE DIMENSIONS





CIRCUIT SCHEMATIC

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PACKAGE DIMENSIONS

Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD		.875		22.23	
CH	.250	.360	6.35	9.15	
HR	.495	.525	12.57	13.3	
HR_1	.131	.188	3.33	4.78	
HT	.060	.135	1.52	3.43	
LD	.057	.063	1.45	1.60	5
	.038	.043	0.97	1.10	6
LL	.312	.500	7.92	12.70	
L_1		.050		1.27	3
MHD	.151	.161	3.84	4.09	7
MHS	1.177	1.197	29.90	30.40	
PS	.420	.440	10.67	11.18	
PS_1	.205	.225	5.21	5.72	
S	.655	.675	16.64	17.15	

NOTES:

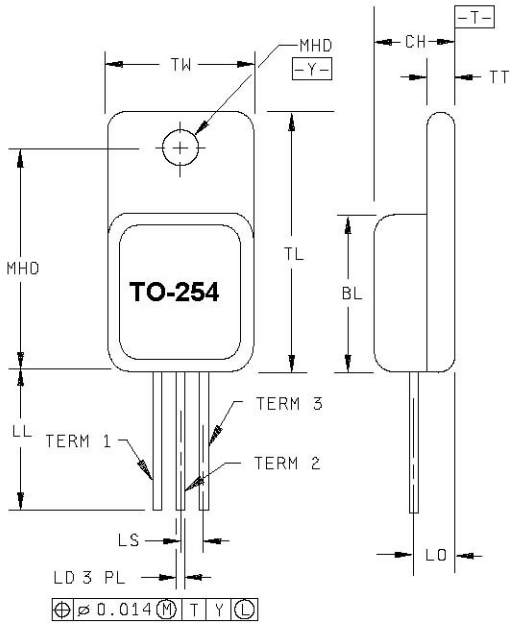
1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. These dimensions shall be measured at points .050 inch (1.27 mm) and .055 inch (1.40 mm) below the seating plane. When gauge is not used, measurement will be made at the seating plane.
4. The seating plane of the header shall be flat within .001 inch (0.03 mm) concave to .004 inch (0.10 mm) convex inside a .930 inch (23.62 mm) diameter circle on the center of the header and flat within .001 inch (0.03 mm) concave to .006 inch (0.15 mm) convex overall.
5. These dimensions pertain to the 2N6764 and 2N6766 types.
6. These dimensions pertain to the 2N6768 and 2N6770 types.
7. Mounting holes shall be deburred on the seating plane side.
8. Drain is electrically connected to the case.
9. In accordance with ASME Y14.5M, diameters are equivalent to φx symbology.

FIGURE 1. Physical dimensions of transistor types 2N6764 and 2N6766 TO-204AE; for types 2N6768 and 2N6770, TO-204AA

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PACKAGE DIMENSIONS



Ltr	Dimensions				Notes
	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		3, 4
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	Drain				
Term 2	Source				
Term 3	Gate				

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Protrusion thickness of ceramic eyelets included in dimension LL.
4. All terminals are isolated from case.
5. In accordance with ASME Y14.5M, diameters are equivalent to φx symbology.

FIGURE 2. Physical dimensions for 2N6764T1, 2N6766T1, 2N6768T1, and 2N6770T1 (TO-254AA).