

P-CHANNEL MOSFET

Qualified per MIL-PRF-19500/562

DEVICES

2N6804

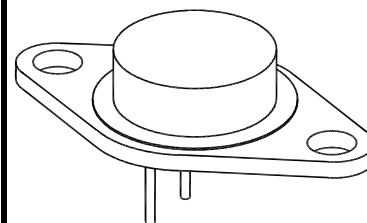
LEVELS

**JAN
JANTX
JANTXV**

ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	Value	Unit
Drain – Source Voltage	V_{DS}	-100	Vdc
Gate – Source Voltage	V_{GS}	± 20	Vdc
Continuous Drain Current $T_C = +25^\circ\text{C}$	I_{D1}	-11	Adc
Continuous Drain Current $T_C = +100^\circ\text{C}$	I_{D2}	-7	Adc
Max. Power Dissipation $T_C = +25^\circ\text{C}$	P_{tl}	75 ⁽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	$^\circ\text{C}$

Note: (1) Derated Linearly by 0.6 W/ $^\circ\text{C}$ for $T_C > +25^\circ\text{C}$

(2) $V_{GS} = 10\text{Vdc}$, $I_D = -7\text{A}$

**2N6804
TO-204AA (TO-3)**

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Drain-Source Breakdown Voltage $V_{GS} = 0\text{V}$, $I_D = 1\text{mA}$	$V_{(BR)DSS}$	-100		Vdc
Gate-Source Voltage (Threshold) $V_{DS} \geq V_{GS}$, $I_D = -0.25\text{mA}$ $V_{DS} \geq V_{GS}$, $I_D = -0.25\text{mA}$, $T_j = +125^\circ\text{C}$ $V_{DS} \geq V_{GS}$, $I_D = -0.25\text{mA}$, $T_j = -55^\circ\text{C}$	$V_{GS(th)1}$ $V_{GS(th)2}$ $V_{GS(th)3}$	-2.0 -1.0	-4.0 -5.0	Vdc
Gate Current $V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$ $V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$, $T_j = +125^\circ\text{C}$	I_{GSS1} I_{GSS2}		± 100 ± 200	nAdc
Drain Current $V_{GS} = 0\text{V}$, $V_{DS} = -80\text{V}$ $V_{GS} = 0\text{V}$, $V_{DS} = -80\text{V}$, $T_j = +125^\circ\text{C}$	I_{DSS1} I_{DSS2}		-25 -0.25	μAdc mAdc
Static Drain-Source On-State Resistance $V_{GS} = -10\text{V}$, $I_D = -7\text{A}$ pulsed $V_{GS} = -10\text{V}$, $I_D = -11\text{A}$ pulsed $T_j = +125^\circ\text{C}$ $V_{GS} = -10\text{V}$, $I_D = -7\text{A}$ pulsed	$r_{DS(on)1}$ $r_{DS(on)2}$ $r_{DS(on)3}$		0.3 0.36 0.55	Ω Ω Ω
Diode Forward Voltage $V_{GS} = 0\text{V}$, $I_D = -11\text{A}$ pulsed	V_{SD}		-4.7	Vdc

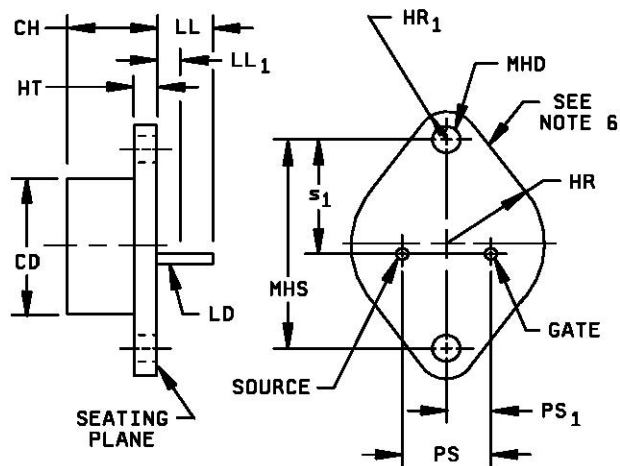
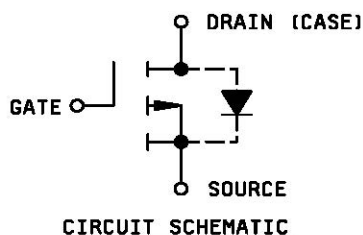
DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Gate Charge:				
On-State Gate Charge	$Q_{g(on)}$		29	nC
Gate to Source Charge	Q_{gs}		7.1	
Gate to Drain Charge	Q_{gd}		21	
$V_{GS} = -10V, I_D = -11A$ $V_{DS} = -80V$				

SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Switching time tests:				
Turn-on delay time	$t_{d(on)}$		60	ns
Rinse time	t_r		140	
Turn-off delay time	$t_{d(off)}$		140	
Fall time	t_f		140	
$I_D = -11A, V_{GS} = -10Vdc,$ Gate drive impedance = $7.5\Omega,$ $V_{DD} = -35Vdc$				
Diode Reverse Recovery Time	t_{rr}		250	ns
$di/dt \leq 100A/\mu s, V_{DD} \leq -50V,$ $I_F = -11A$				

PACKAGE DIMENSIONS



Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CH	.250	.360	6.35	9.15	3
LD	.038	.043	0.97	0.110	
CD		.875		22.23	
PS	.420	.440	10.67	11.18	3
PS ₁	.205	.225	5.21	5.72	3
HT	.060	.135	1.52	3.43	
LL	.312	.500	7.92	12.70	
LL ₁		.050		1.27	
MHD	.151	.161	3.84	4.09	
MHS	1.177	1.197	29.90	30.40	
HR	.495	.525	12.57	13.34	
HR ₁	.131	.188	3.33	4.78	
s ₁	.655	.675	16.64	17.15	

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. These dimensions should be measured at points .050 inch (1.27 mm) to .055 inch (1.40 mm) below seating plane. 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. Mounting holes shall be deburred on the seating plane side.
6. Drain is electrically connected to case.
7. In accordance with ASME Y14.5M, diameters are equivalent to ϕ x symbology.

FIGURE 1. Physical dimensions of transistor (TO-204AA).