

2N6796, JANTX2N6796 JANTXV2N6796
2N6798, JANTX2N6798 JANTXV2N6798

2N6800, JANTX2N6800, JANTXV2N6800
2N6802, JANTX2N6802, JANTXV2N6802

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

Parameter	JANTXV, JANTX, 2N6796	Units
I_D @ $V_{GS} = 10\text{V}$, $T_C = 25^\circ\text{C}$ Continuous Drain Current	8.0	A
I_D @ $V_{GS} = 10\text{V}$, $T_C = 100^\circ\text{C}$ Continuous Drain Current	5.0	A
I_{DM} Pulsed Drain Current ¹	32	A
P_D @ $T_C = 25^\circ\text{C}$ Maximum Power Dissipation	25	W
Linear Derating Factor	0.2	W/ $^\circ\text{C}$
V_{GS} Gate-Source Voltage	± 20	V
E_{AS} Single Pulse Avalanche Energy ²	4.3 ⁴	mJ
T_J Operating Junction	-55 to 150	$^\circ\text{C}$
T_{STG} Storage Temperature Range		$^\circ\text{C}$
Lead Temperature	300(.06 from case for 10 sec)	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS @ $T_J = 25^\circ\text{C}$ (Unless Otherwise Specified)

Parameter	Min.	Typ.	Max.	Units	Test Conditions
BV_{DSS} Drain-Source Breakdown Voltage	100			V	$V_{GS} = 0\text{V}$, $I_D \approx 1.0\text{ mA}$
$R_{DS(on)}$ Static Drain-to-Source On-State Resistance	—	—	.18		$V_{GS} = 10\text{V}$, $I_D = 5.0\text{ A}$ ³
	—	—	.195		$V_{GS} = 10\text{V}$, $I_D = 8.0\text{ A}$ ³
$V_{GS(th)}$ Gate Threshold Voltage	2.0	—	4.0	V	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$
I_{SS} Zero Gate Voltage Drain Current	—	—	25	μA	$V_{DS} = 80\text{ V}$, $V_{GS} = 0\text{V}$
	—	—	250		$V_{DS} = 80\text{ V}$, $V_{GS} = 0\text{V}$, $T_J = 125^\circ\text{C}$
I_{SSS} Gate -to-Source Leakage Forward	—	—	100	nA	$V_{GS} = 20\text{ V}$
I_{SSS} Gate -to-Source Leakage Reverse	—	—	-100	nA	$V_{GS} = -20\text{ V}$
$Q_{G(on)}$ On-state Gate Charge	—	—	28.5	nC	$V_{GS} = 10\text{V}$, $I_D = 8\text{A}$
Q_{GS} Gate-to-Source Charge	—	—	6.3	nC	$V_{DS} = 50\text{ V}$
Q_{GD} Gate-to-Drain ("Miller") Charge	—	—	16.6	nC	See note 4
$t_{b(on)}$ Turn-On Delay Time	—	—	30	ns	$V_{DD} = 30\text{ V}$, $I_D = 5.0\text{ A}$, $R_G = 7.5$
t_r Rise Time	—	—	75	ns	See note 4
t_{off} Turn-Off Delay Time	—	—	40	ns	
t_f Fall Time	—	—	45	ns	

Source-Drain Diode Ratings and Characteristics

Parameter	Min.	Typ.	Max.	Units	Test Conditions
V_{SD} Diode Forward Voltage	—	—	1.5	V	$T_J = 25^\circ\text{C}$, $I_S = 8.0\text{ A}$ ³ , $V_{GS} = 0\text{ V}$ ³
t_r Reverse Recovery Time	—	—	300	ns	$T_J = 25^\circ\text{C}$, $I_F = 8.0\text{ A}$, $dI/dt \leq 100\text{ A}/\mu\text{s}$

Thermal Resistance

Parameter	Min.	Typ.	Max.	Units	Test Conditions
R_{thJC} Junction-to-Case	—	—	5.0	$^\circ\text{C}/\text{W}$	Mounting surface flat, smooth, and greased
R_{thCS} Case-to-sink	—	0.21	—		
R_{thJA} Junction-to-Ambient	—	—	175		

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. @ $V_{DD} = 25\text{ V}$, Starting $T_J = 25^\circ\text{C}$, $L = 100\text{ }\mu\text{H} \pm 10\%$, $R_G = 25$, Peak $I_L = 8.0\text{ A}$
3. Pulse width $\leq 300\text{ }\mu\text{s}$; Duty Cycle $\leq 2\%$
4. See MIL-S-19500/557



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2N6802, JANTX2N6802, JANTXV2N6802

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

Parameter	JANTXV, JANTX, 2N6798	Units
I_D @ $V_{GS} = 10\text{V}$, $T_c = 25^\circ\text{C}$ Continuous Drain Current	5.5	A
I_D @ $V_{GS} = 10\text{V}$, $T_c = 100^\circ\text{C}$ Continuous Drain Current	3.5	A
I_{DM} Pulsed Drain Current ¹	22	A
P_D @ $T_c = 25^\circ\text{C}$ Maximum Power Dissipation	25	W
Linear Derating Factor	0.2	W/ $^\circ\text{C}$
V_{GS} Gate-Source Voltage	± 20	V
E_{AS} Single Pulse Avalanche Energy ²	2.0 ⁴	mJ
T_J Operating Junction	-55 to 150	$^\circ\text{C}$
T_{STG} Storage Temperature Range		
Lead Temperature	300(.06 from case for 10 sec)	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS @ $T_J = 25^\circ\text{C}$ (Unless Otherwise Specified)

Parameter	Min.	Typ.	Max.	Units	Test Conditions
BV_{DSS} Drain-Source Breakdown Voltage	200			V	$V_{GS} = 0\text{V}$, $I_D = 1.0\text{ mA}$
$R_{DS(on)}$ Static Drain-to-Source On-State Resistance	—	—	.40		$V_{GS} = 10\text{V}$, $I_D = 3.5\text{ A}$ ³
	—	—	.42		$V_{GS} = 10\text{V}$, $I_D = 5.5\text{ A}$ ³
$V_{GS(th)}$ Gate Threshold Voltage	2.0	—	4.0	V	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$
I_{DSS} Zero Gate Voltage Drain Current	—	—	25	μA	$V_{DS} = 100\text{ V}$, $V_{GS} = 0\text{V}$
	—	—	250		$V_{DS} = 100\text{ V}$, $V_{GS} = 0\text{V}$, $T_J = 125^\circ\text{C}$
I_{SS} Gate -to-Source Leakage Forward	—	—	100	nA	$V_{GS} = 20\text{ V}$
I_{SS} Gate -to-Source Leakage Reverse	—	—	-100	nA	$V_{GS} = -20\text{ V}$
$Q_{G(on)}$ On-state Gate Charge	—	—	42.1	nC	$V_{GS} = 10\text{V}$, $I_D = 5.5\text{ A}$
Q_{GS} Gate-to-Source Charge	—	—	5.3	nC	$V_{DS} = 100\text{ V}$
Q_{Gd} Gate-to-Drain ("Miller") Charge	—	—	28.1	nC	See note 4
t_{ON} Turn-On Delay Time	—	—	30	ns	$V_{DD} = 77\text{ V}$, $I_D = 3.5\text{ A}$, $R_\theta = 7.5$ See note 4
t_r Rise Time	—	—	50	ns	
t_{OFF} Turn-Off Delay Time	—	—	50	ns	
t_f Fall Time	—	—	40	ns	

Source-Drain Diode Ratings and Characteristics

Parameter	Min.	Typ.	Max.	Units	Test Conditions
V_{SD} Diode Forward Voltage	—	—	1.4	V	$T_J = 25^\circ\text{C}$, $I_S = 5.5\text{ A}$ ³ , $V_{GS} = 0\text{ V}$ ³
t_r Reverse Recovery Time	—	—	500	ns	$T_J = 25^\circ\text{C}$, $I_F = 5.5\text{ A}$, $di/dt \leq 100\text{ A}/\mu\text{s}$ ³

Thermal Resistance

Parameter	Min.	Typ.	Max.	Units	Test Conditions
R_{thJC} Junction-to-Case	—	—	5.0	$^\circ\text{C}/\text{W}$	Mounting surface flat, smooth, and greased
R_{thCS} Case-to-sink	—	0.21	—		
R_{thJA} Junction-to-Ambient	—	—	175		Typical socket mount

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. @ $V_{DD} = 50\text{ V}$, Starting $T_J = 25^\circ\text{C}$, $L = 100\text{ }\mu\text{H} \pm 10\%$, $R_\theta = 25$, Peak $I_L = 5.5\text{ A}$
3. Pulse width $\leq 300\text{ }\mu\text{s}$; Duty Cycle $\leq 2\%$
4. See MIL-S-19500/557

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2N6800, JANTX2N6800, JANTXV2N6800
2N6802, JANTX2N6802, JANTXV2N6802

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

Parameter	JANTXV, JANTX, 2N6800	Units
I_D @ $V_{GS} = 10\text{V}$, $T_C = 25^\circ\text{C}$ Continuous Drain Current	3.0	A
I_D @ $V_{GS} = 10\text{V}$, $T_C = 100^\circ\text{C}$ Continuous Drain Current	2.0	A
I_M Pulsed Drain Current ¹	14	A
P_D @ $T_C = 25^\circ\text{C}$ Maximum Power Dissipation	25	W
Linear Derating Factor	0.2	W/ $^\circ\text{C}$
V_{GS} Gate-Source Voltage	± 20	V
E_{AS} Single Pulse Avalanche Energy ²	0.51 ⁴	mJ
T_J Operating Junction	-55 to 150	$^\circ\text{C}$
T_{STG} Storage Temperature Range		
Lead Temperature	300(.06 from case for 10 sec)	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS @ $T_J = 25^\circ\text{C}$ (Unless Otherwise Specified)

Parameter	Min.	Typ.	Max.	Units	Test Conditions
BV_{DSS} Drain-Source Breakdown Voltage	400			V	$V_{GS} = 0\text{V}$, $I_D = 1.0\text{ mA}$
$R_{DS(on)}$ Static Drain-to-Source On-State Resistance	—	—	1.0		$V_{GS} = 10\text{ V}$, $I_D = 2.0\text{ A}$ ³
	—	—	1.10		$V_{GS} = 10\text{ V}$, $I_D = 3.0\text{ A}$ ³
$V_{GS(th)}$ Gate Threshold Voltage	2.0	—	4.0	V	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$
I_{SS} Zero Gate Voltage Drain Current	—	—	25	μA	$V_{DS} = 320\text{ V}$, $V_{GS} = 0\text{V}$
	—	—	250		$V_{DS} = 320\text{ V}$, $V_{GS} = 0\text{V}$, $T_J = 125^\circ\text{C}$
I_{SS} Gate -to-Source Leakage Forward	—	—	100	nA	$V_{GS} = 20\text{ V}$
I_{SS} Gate -to-Source Leakage Reverse	—	—	-100	nA	$V_{GS} = -20\text{ V}$
$Q_{G(on)}$ On-state Gate Charge	—	—	33	nC	$V_{GS} = 10\text{ V}$, $I_D = 3.0\text{ A}$
Q_{GS} Gate-to-Source Charge	—	—	5.8	nC	$V_{DS} = 200\text{ V}$
Q_{Gd} Gate-to-Drain ("Miller") Charge	—	—	16.6	nC	See note 4
$t_{b(on)}$ Turn-On Delay Time	—	—	30	ns	$V_{DD} = 176\text{ V}$, $I_D = 2\text{ A}$, $R_G = 7.5$ See note 4
t_r Rise Time	—	—	35	ns	
$t_{b(off)}$ Turn-Off Delay Time	—	—	55	ns	
t_f Fall Time	—	—	35	ns	

Source-Drain Diode Ratings and Characteristics

Parameter	Min.	Typ.	Max.	Units	Test Conditions
V_{SD} Diode Forward Voltage	—	—	1.4	V	$T_J = 25^\circ\text{C}$, $I_S = 3\text{ A}$ ³ , $V_{GS} = 0\text{ V}$
t_r Reverse Recovery Time	—	—	700	ns	$T_J = 25^\circ\text{C}$, $I_F = 3.0\text{ A}$, $di/dt < 100\text{ A}/\mu\text{s}$ ³

Thermal Resistance

Parameter	Min.	Typ.	Max.	Units	Test Conditions
R_{thJC} Junction-to-Case	—	—	5.0	$^\circ\text{C}/\text{W}$	Mounting surface flat, smooth, and greased Typical socket mount
R_{thCS} Case-to-sink	—	0.21	—		
R_{thJA} Junction-to-Ambient	—	—	175		

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. @ $V_{DD} = 50\text{ V}$, Starting $T_J = 25^\circ\text{C}$, $L = 100\text{ }\mu\text{H} \pm 10\%$, $R_G = 25$, Peak $I_L = 3.0\text{ A}$
3. Pulse width $\leq 300\text{ }\mu\text{s}$; Duty Cycle $\leq 2\%$
4. See MIL-S-19500/557

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2N6802, JANTX2N6802, JANTXV2N6802

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

Parameter	JANTXV, JANTX, 2N6802	Units
I_D @ $V_{GS} = 10\text{V}$, $T_C = 25^\circ\text{C}$ Continuous Drain Current	2.5	A
I_D @ $V_{GS} = 10\text{V}$, $T_C = 100^\circ\text{C}$ Continuous Drain Current	1.5	A
I_{DM} Pulsed Drain Current ¹	11	A
P_D @ $T_C = 25^\circ\text{C}$ Maximum Power Dissipation	25	W
Linear Derating Factor	0.20	W/ $^\circ\text{C}$
V_{GS} Gate-Source Voltage	± 20	V
E_{AS} Single Pulse Avalanche Energy ²	.35 ⁴	mJ
T_J Operating Junction	-55 to 150	$^\circ\text{C}$
T_{STG} Storage Temperature Range		$^\circ\text{C}$
Lead Temperature	300 (.06 from case for 10 sec)	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS @ $T_J = 25^\circ\text{C}$ (Unless Otherwise Specified)

Parameter	Min.	Typ.	Max.	Units	Test Conditions
BV_{DSS} Drain-Source Breakdown Voltage	500			V	$V_{GS} = 0\text{V}$, $I_D \approx 1.0\text{ mA}$
$R_{DS(on)}$ Static Drain-to-Source On-State Resistance	—	—	1.5		$V_{GS} = 10\text{V}$, $I_D = 1.5\text{ A}$ ³
	—	—	1.6		$V_{GS} = 10\text{V}$, $I_D = 2.5\text{ A}$ ³
$V_{GS(th)}$ Gate Threshold Voltage	2.0	—	4.0	V	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$
I_{DSS} Zero Gate Voltage Drain Current	—	—	25	μA	$V_{DS} = 400\text{ V}$, $V_{GS} = 0\text{V}$
	—	—	250		$V_{DS} = 400\text{ V}$, $V_{GS} = 0\text{V}$, $T_J = 125^\circ\text{C}$
I_{SS} Gate -to-Source Leakage Forward	—	—	100	nA	$V_{GS} = 20\text{ V}$
I_{SS} Gate -to-Source Leakage Reverse	—	—	-100	nA	$V_{GS} = -20\text{ V}$
$Q_{G(on)}$ On-state Gate Charge	—	—	29.5	nC	$V_{GS} = 10\text{V}$, $I_D = 2.5\text{ A}$
Q_{GS} Gate-to-Source Charge	—	—	4.5	nC	$V_{DS} = 250\text{ V}$
Q_{GD} Gate-to-Drain ("Miller") Charge	—	—	28.1	nC	See note 4
t_{ON} Turn-On Delay Time	—	—	30	ns	$V_{DD} = 225\text{ V}$, $I_D = 1.5\text{ A}$, $R_G = 7.5$
t_r Rise Time	—	—	30	ns	See note 4
t_{OFF} Turn-Off Delay Time	—	—	55	ns	
t_f Fall Time	—	—	30	ns	

Source-Drain Diode Ratings and Characteristics

Parameter	Min.	Typ.	Max.	Units	Test Conditions
V_{SD} Diode Forward Voltage	—	—	1.4	V	$T_J = 25^\circ\text{C}$, $I_S = 2.5\text{ A}$ ³ , $V_{GS} = 0\text{ V}$
t_r Reverse Recovery Time	—	—	900	ns	$T_J = 25^\circ\text{C}$, $I_F = 2.5\text{ A}$, $di/dt \leq 100\text{ A}/\mu\text{s}$ ³

Thermal Resistance

Parameter	Min.	Typ.	Max.	Units	Test Conditions
R_{thJC} Junction-to-Case	—	—	5.0	$^\circ\text{C}/\text{W}$	Mounting surface flat, smooth, and greased
R_{thCS} Case-to-sink	—	0.21	—		
R_{thJA} Junction-to-Ambient	—	—	175		

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. @ $V_{DD} = 50\text{ V}$, Starting $T_J = 25^\circ\text{C}$, $L = 100\text{ }\mu\text{H} \pm 10\%$, $R_G = 25$, Peak $I_L = 2.5\text{ A}$
3. Pulse width $\leq 300\text{ }\mu\text{s}$; Duty Cycle $\leq 2\%$
4. See MIL-S-19500/557



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