

2N6661JAN/JANTX/JANTXV

N-Channel Enhancement-Mode MOSFET Transistors

Product Summary

$V_{(BR)DSS}$ Min (V)	$r_{DS(on)}$ Max (Ω)	$V_{GS(th)}$ (V)	I_D (A)
90	4 @ $V_{GS} = 10$ V	0.8 to 2	0.86

Features

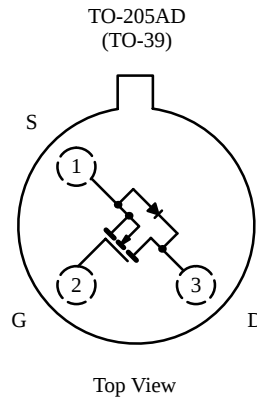
- Military Qualified
- Low On-Resistance: 3.6 Ω
- Low Threshold: 1.6 V
- Low Input Capacitance: 35 pF
- Fast Switching Speed: 6 ns
- Low Input and Output Leakage

Benefits

- Guaranteed Reliability
- Low Offset Voltage
- Low-Voltage Operation
- Easily Driven Without Buffer
- High-Speed Circuits
- Low Error Voltage

Applications

- Military Applications
- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories, Transistors, etc.
- Battery Operated Systems
- Solid-State Relays



Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	90	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$)	$T_C = 25^\circ\text{C}$	I_D	0.86	A
	$T_C = 100^\circ\text{C}$		0.54	
Pulsed Drain Current ^a		I_{DM}	3	
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	6.25	W
	$T_A = 25^\circ\text{C}$		0.725	
Maximum Junction-to-Ambient ^b		R_{thJA}	170	$^\circ\text{C/W}$
Maximum Junction-to-Case		R_{thJC}	20	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

Notes

- a. Pulse width limited by maximum junction temperature.
b. Not required by Military Spec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70225.

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Specifications^a

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ ^b	Max	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 10 μA	90	125		V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1 mA	0.8	1.6	2	
		T _C = −55°C		1.8	2.5	
		T _C = 125°C	0.3	1.3		
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V			± 100	nA
		T _C = 125°C			± 500	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 72 V, V _{GS} = 0 V			1	μA
		T _C = 125°C			100	
On-State Drain Current ^c	I _{D(on)}	V _{DS} = 10 V, V _{GS} = 10 V		1.8		mA
Drain-Source On-Resistance ^c	r _{DS(on)}	V _{GS} = 5 V, I _D = 0.3 A		3.8	5.3	Ω
		V _{GS} = 10 V, I _D = 1 A		3.6	4	
		T _C = 125°C		6.7	7.5	
Forward Transconductance ^c	g _{fs}	V _{DS} = 7.5 V, I _D = 0.475 A	170	340		mS
Diode Forward Voltage	V _{SD}	I _S = 0.86 A, V _{GS} = 0 V	0.7	0.9	1.4	V
Dynamic						
Input Capacitance	C _{iss}	V _{DS} = 25 V, V _{GS} = 0 V f = 1 MHz		35	50	pF
Output Capacitance	C _{oss}			15	40	
Reverse Transfer Capacitance	C _{rss}			2	10	
Drain-Source Capacitance	C _{ds}			30		
Switching ^d						
Turn-On Time	t _{ON}	V _{DD} = 25 V, R _L = 23 Ω I _D ≅ 1 A, V _{GEN} = 10 V R _G = 25 Ω		6	10	ns
Turn-Off Time	t _{OFF}			8	10	

Notes

- $T_A = 25^\circ\text{C}$ unless otherwise noted.
- For DESIGN AID ONLY, not subject to production testing.
- Pulse test: $PW \leq 300\text{ }\mu\text{s}$ duty cycle $\leq 2\%$.
- Switching time is essentially independent of operating temperature.
- For typical characteristics curves see the 2N6661/VN88AFD data sheet.

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