



JAN Qualified N-Channel 60-V (D-S) MOSFETs

PRODUCT SUMMARY			
$V_{(BR)DSS}$ Min (V)	$r_{DS(on)}$ Max (Ω)	$V_{GS(th)}$ (V)	I_D (A)
60	3 @ $V_{GS} = 10$ V	0.8 to 2	0.99

FEATURES

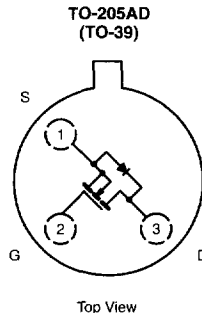
- Military Qualified
- Low On-Resistance: 1.3 Ω
- Low Threshold: 1.7 V
- Low Input Capacitance: 35 pF
- Fast Switching Speed: 8 ns
- Low Input and Output Leakage

BENEFITS

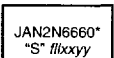
- Guaranteed Reliability
- Low Offset Voltage
- Low-Voltage Operation
- Easily Driven Without Buffer
- High-Speed Circuits
- Low Error Voltage

APPLICATIONS

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



Device Marking Side View



*S = Siliconix Logo
 f = Factory Code
 // = Lot Traceability
 xxyy = Date Code

*Note: or JANTX2N6660
 JANTXV2N6660

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$)	I_D	$T_C = 25^\circ\text{C}$	0.99
		$T_C = 100^\circ\text{C}$	0.62
Pulsed Drain Current ^a	I_{DM}	3	A
Power Dissipation	P_D	$T_C = 25^\circ\text{C}$	6.25
		$T_A = 25^\circ\text{C}$	0.725
Thermal Resistance, Junction-to-Ambient ^b	$R_{\theta JA}$	170	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	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.



SPECIFICATIONS ^a						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ ^b	Max	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 10\ \mu\text{A}$	60	75		V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 1\text{ mA}$	0.8	1.7	2	
		$T_C = -55^\circ\text{C}$			2.5	
		$T_C = 125^\circ\text{C}$	0.3			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
		$T_C = 125^\circ\text{C}$			± 500	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48\text{ V}, V_{GS} = 0\text{ V}$			1	μA
		$T_C = 125^\circ\text{C}$			100	
On-State Drain Current ^c	$I_{D(on)}$	$V_{DS} = 10\text{ V}, V_{GS} = 10\text{ V}$		2		A
Drain-Source On-Resistance ^c	$r_{DS(on)}$	$V_{GS} = 5\text{ V}, I_D = 0.3\text{ A}$		2	5	Ω
		$V_{GS} = 10\text{ V}, I_D = 1\text{ A}$		1.3	3	
		$T_C = 125^\circ\text{C}$		2.4	5.6	
Forward Transconductance ^c	g_{fs}	$V_{DS} = 7.5\text{ V}, I_D = 0.525\text{ A}$	170	350		mS
Diode Forward Voltage	V_{SD}	$I_S = 0.99\text{ A}, V_{GS} = 0\text{ V}$	0.7	0.8	1.6	V
Dynamic						
Input Capacitance	C_{iss}	$V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V}$ $f = 1\text{ MHz}$		35	50	pF
Output Capacitance	C_{oss}			25	40	
Reverse Transfer Capacitance	C_{rss}			7	10	
Drain-Source Capacitance	C_{ds}			30		
Switching^d						
Turn-On Time	t_{ON}	$V_{DD} = 25\text{ V}, R_L = 23\ \Omega$ $I_D = 1\text{ A}, V_{GEN} = 10\text{ V}$ $R_G = 25\ \Omega$		8	10	ns
Turn-Off Time	t_{OFF}			8.5	10	

Notes

- a. $T_A = 25^\circ\text{C}$ unless otherwise noted.
- b. For DESIGN AID ONLY, not subject to production testing.
- c. Pulse test. $PW \leq 300\ \mu\text{s}$ duty cycle $\leq 2\%$.
- d. Switching time is essentially independent of operating temperature.
- e. For typical characteristics curves see the 2N6659/2N6660, VQ1004/J/P data sheet.

VNDQ06