



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

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

### FEATURES

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

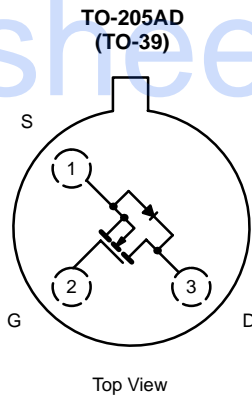
### BENEFITS

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

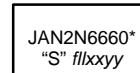
### APPLICATIONS

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

Datasheet.Directory



Device Marking  
Side View



"S" = Siliconix Logo  
f = Factory Code  
// = Lot Traceability  
xyxy = 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	$V_{GS}$	$\pm 20$	
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ )	$I_D$	$T_C = 25^\circ\text{C}$	A
		$T_C = 100^\circ\text{C}$	
Pulsed Drain Current <sup>a</sup>	$I_{DM}$	3	
Power Dissipation	$P_D$	$T_C = 25^\circ\text{C}$	W
		$T_A = 25^\circ\text{C}$	
Thermal Resistance, Junction-to-Ambient <sup>b</sup>	$R_{thJA}$	170	$^\circ\text{C/W}$
Thermal Resistance, 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.

SPECIFICATIONS <sup>a</sup>							
Parameter	Symbol	Test Conditions	Limits			Unit	
			Min	Typ <sup>b</sup>	Max		
<b>Static</b>							
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
			0.3				
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$				$\pm 100$	nA
			$T_C = 125^\circ\text{C}$			$\pm 500$	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 48\text{ V}, V_{GS} = 0\text{ V}$				1	$\mu\text{A}$
			$T_C = 125^\circ\text{C}$			100	
On-State Drain Current <sup>c</sup>	$I_{D(on)}$	$V_{DS} = 10\text{ V}, V_{GS} = 10\text{ V}$		2		A	
Drain-Source On-Resistance <sup>c</sup>	$r_{DS(on)}$	$V_{GS} = 5\text{ V}, I_D = 0.3\text{ A}$		2	5	$\Omega$	
			$V_{GS} = 10\text{ V}, I_D = 1\text{ A}$		1.3		3
			$T_C = 125^\circ\text{C}$		2.4		5.6
Forward Transconductance <sup>c</sup>	$g_{fs}$	$V_{DS} = 7.5\text{ V}, I_D = 0.525\text{ A}$	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	
<b>Dynamic</b>							
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			
<b>Switching<sup>d</sup></b>							
Turn-On Time	$t_{ON}$	$V_{DD} = 25\text{ V}, R_L = 23\ \Omega$ $I_D \cong 1\text{ A}, V_{GEN} = 10\text{ V}$ $R_G = 25\ \Omega$		8	10	ns	
Turn-Off Time	$t_{OFF}$			8.5	10		

## Notes

- $T_A = 25^\circ\text{C}$  unless otherwise noted.
- For DESIGN AID ONLY, not subject to production testing.
- Pulse test:  $PW \leq 300\ \mu\text{s}$  duty cycle  $\leq 2\%$ .
- Switching time is essentially independent of operating temperature.
- For typical characteristics curves see the 2N6659/2N6660, VQ1004J/P data sheet.

VNDQ06