2N7228JANTX/JANTXV

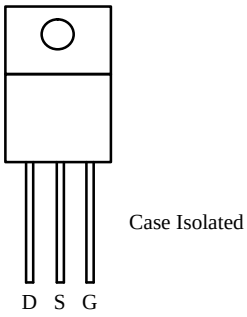
N-Channel Enhancement-Mode Transistors

Product Summary

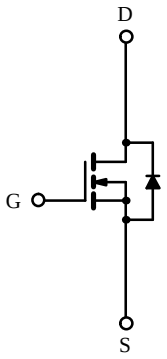
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
500	0.515	12

Parametric limits in accordance with MIL-S-19500/592 where applicable.

TO-254AA
Hermetic Package



Top View



N-Channel MOSFET

Absolute Maximum Ratings (T_C = 25°C Unless Otherwise Noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	500	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current (T_J = 150°C)	T_C = 25°C	I_D	12	A
	T_C = 100°C		8	
Pulsed Drain Current		I_{DM}	48	
Avalanche Current		I_{AR}	12	
Maximum Power Dissipation	T_C = 25°C	P_D	150	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	–55 to 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Case	R_{thJC}	0.83	°C/W

Subsequent updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1496.

Specifications (T_J = 25°C Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Limit			Unit
			Min	Typ[a]	Max	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 1000 µA	500			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA, T_J = –55°C			5.0	
		V_{DS} = V_{GS}, I_D = 250 µA, T_J = 25°C	2.0		4.0	
		V_{DS} = V_{GS}, I_D = 250 µA, T_J = 125°C	1.0			
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
		V_{DS} = 0 V, V_{GS} = ±20 V, T_J = 125°C			±200	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 400 V, V_{GS} = 0 V			25	µA
		V_{DS} = 400 V, V_{GS} = 0 V, T_J = 125°C			250	
		V_{DS} = 500 V, V_{GS} = 0 V, T_J = 125°C			1000	
Drain-Source On-State Resistance[b]	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 12 A			0.515	Ω
		V_{GS} = 10 V, I_D = 8 A, T_J = 125°C			0.9	
Dynamic						
Total Gate Charge[c]	Q_g	V_{DS} = 250 V, V_{GS} = 10 V, I_D = 12 A	55		120	nC
Gate-Source Charge[c]	Q_{gs}		5		19	
Gate-Drain Charge[c]	Q_{gd}		27		70	
Turn-On Delay Time[c]	$t_{d(on)}$	V_{DD} = 250 V, R_L = 20.8 Ω I_D ≅ 12 A, V_{GEN} = 10 V, R_G = 2.35 Ω			35	ns
Rise Time[c]	t_r				190	
Turn-Off Delay Time[c]	$t_{d(off)}$				170	
Fall Time[c]	t_f				130	
Source-Drain Diode Ratings and Characteristics						
Continuous Current	I_S				12	A
Pulsed Current	I_{SM}				48	
Diode Forward Voltage[b]	V_{SD}	I_F = 12 A, V_{GS} = 0 V			1.7	V
Reverse Recovery Time	t_{rr}	I_F = 12 A, di/dt = 100 A/µs			1600	ns

Notes:
a. For design aid only; not subject to production testing.
b. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2%.
c. Independent of operating temperature.