

STN3NF06L Datasheet

N-Channel 60-V (D-S) MOSFET

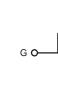
PRODUCT SUMMARY					
V _{DS} (V)	$R_{DS(on)}\left(\Omega\right)$	I _D (A)			
60	0.029 at V _{GS} = 10 V	7.0			
	0.033 at V _{GS} = 4.5 V	5.6			

FEATURES

- Halogen-free According to IEC 61249-2-21 Definition
- TrenchFET® Power MOSFETs
- 175 °C Maximum Junction Temperature
- Compliant to RoHS Directive 2002/95/EC







N-Channel MOSFET

SOT-223	
DOGO	s

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted						
Parameter		Symbol	10 s	Steady State	Unit	
Drain-Source Voltage		V_{DS}	60		V	
Gate-Source Voltage		V_{GS}	± 20			
Continuous Drain Current (T _{.1} = 175 °C) ^a	T _A = 25 °C	I _D	7.0	6.0	Α	
Continuous Diam Current (1) = 175 C)	T _A = 70 °C		6.1	5.0		
Pulsed Drain Current		I _{DM}	40		*	
Avalanche Current		I _{AS}	15			
Single Pulse Avalanche Energy		E _{AS}	11		mJ	
Mariana Dama Dissination	T _A = 25 °C	- P _D	3.3	1.7	W	
Maximum Power Dissipation ^a	T _A = 70 °C		2.3	1.2	VV	
Operating Junction and Storage Temperature Ran	T _J , T _{stg}	- 55 to 175		°C		

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient ^a	t ≤ 10 s	R _{thJA}	36	45	°C/W	
Maximum Junction-to-Ambient "	Steady State		75	90		
Maximum Junction-to-Foot (Drain)	Steady State	R _{thJF}	17	20		

Notes:

a. Surface Mounted on 1" x 1" FR4 board.



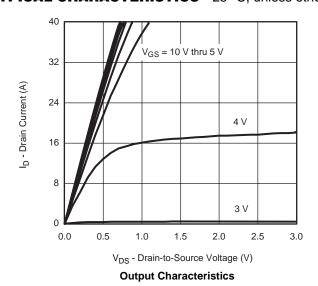
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static	l l		•				
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$	60			V	
Gate Threshold Voltage	$V_{GS(th)}$ $V_{DS} = V_{GS}$, $I_D = 250 \mu A$		1		3	V	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA	
Zoro Coto Voltago Droin Current	I _{DSS}	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$ $V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 \text{ °C}$			1	μΑ	
Zero Gate Voltage Drain Current					20		
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	40			Α	
	R _{DS(on)}	$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}$		0.028		Ω	
		$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}, T_J = 125 \text{ °C}$		0.032			
Drain-Source On-State Resistance ^a		$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}, T_J = 175 \text{ °C}$		0.040			
		$V_{GS} = 4.5 \text{ V}, I_D = 5.1 \text{ A}$		0.033			
Forward Transconductance ^a	9 _{fs}	$V_{DS} = 15 \text{ V}, I_D = 6.0 \text{ A}$		25		S	
Diode Forward Voltage ^a	V_{SD}	I _S = 1.7 A, V _{GS} = 0 V		0.8	1.2	V	
Dynamic ^b	1		•	•			
Total Gate Charge	Q_g			18	27		
Gate-Source Charge	Q_{gs}	u		3.4		nC	
Gate-Drain Charge	Q_{gd}			5.3			
Gate Resistance	R_g	V _{GS} = 0.1 V, f = 5 MHz	0.5	1.4	2.4	Ω	
Turn-On Delay Time	t _{d(on)}			10	20		
Rise Time t _r		V_{DD} = 30 V, R_L = 30 Ω		10	20		
Turn-Off Delay Time	t _{d(off)}	$I_D\cong 1$ A, $V_{GEN}=10$ V, $R_g=6$ Ω		25	50	ns	
Fall Time	t _f			12	24		
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.7 A, dI/dt = 100 A/μs		50	80		

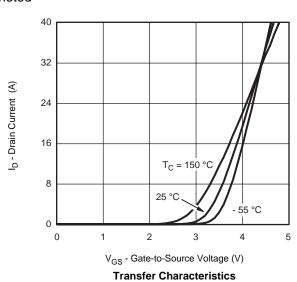
Notes:

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- a. Pulse test; pulse width \leq 300 μ s, duty cycle \leq 2 %.
- b. Guaranteed by design, not subject to production testing.

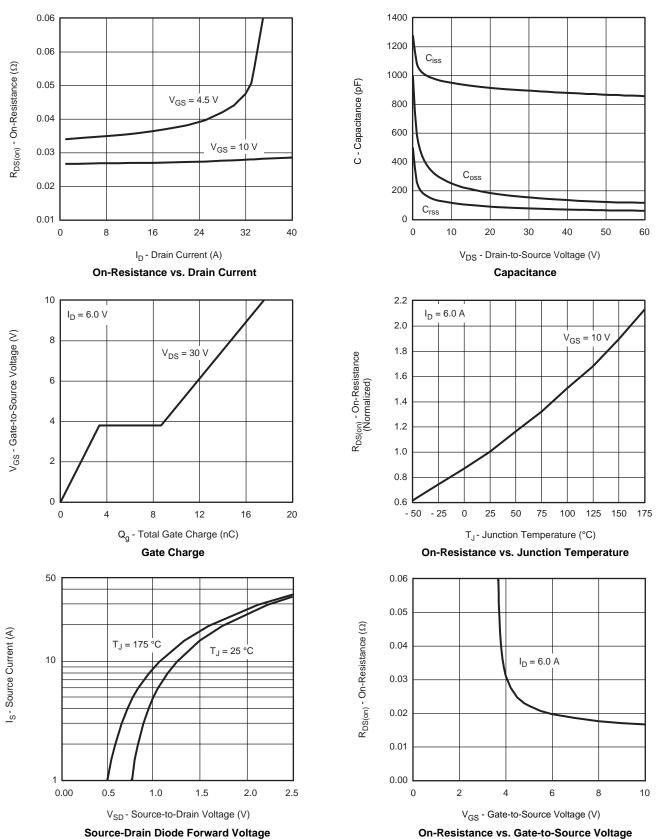
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted







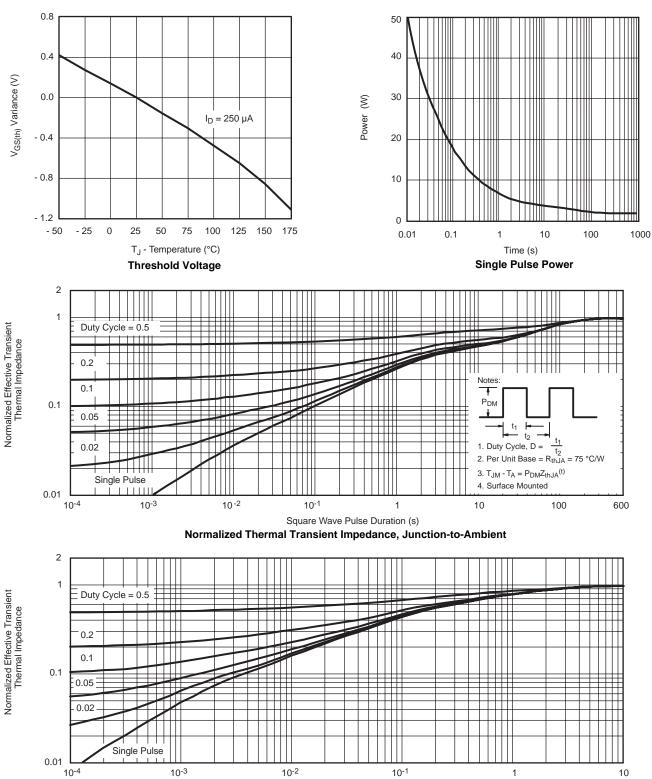
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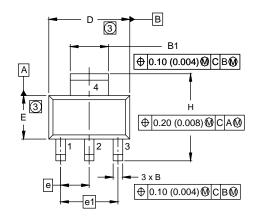
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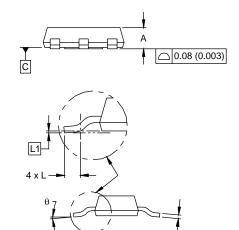


Square Wave Pulse Duration (s) Normalized Thermal Transient Impedance, Junction-to-Foot



SOT-223 (HIGH VOLTAGE)





DIM.	MILLI	METERS	INCHES		
	MIN.	MAX.	MIN.	MAX.	
Α	1.55	1.80	0.061	0.071	
В	0.65	0.85	0.026	0.033	
B1	2.95	3.15	0.116	0.124	
С	0.25	0.35	0.010	0.014	
D	6.30	6.70	0.248	0.264	
E	3.30	3.70	0.130	0.146	
е	2.30 BSC		0.0905 BSC		
e1	4.60 BSC		0.181 BSC		
Н	6.71	7.29	0.264	0.287	
L	0.91	-	0.036	-	
L1	0.061 BSC		0.0024 BSC		
θ	-	10'	-	10'	

ECN: S-82109-Rev. A, 15-Sep-08

DWG: 5969

Notes

- 1. Dimensioning and tolerancing per ASME Y14.5M-1994.
- 2. Dimensions are shown in millimeters (inches).
- 3. Dimension do not include mold flash.
- 4. Outline conforms to JEDEC outline TO-261AA.



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