

Features

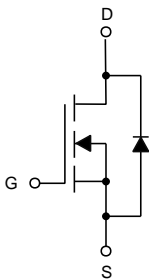
- Ultra Low Gate Charge
- Low Reverse Transfer Capacitance
- Fast Switching Capability
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 100°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3.7	A
Pulsed Drain Current	I_{DM}	14.8	A

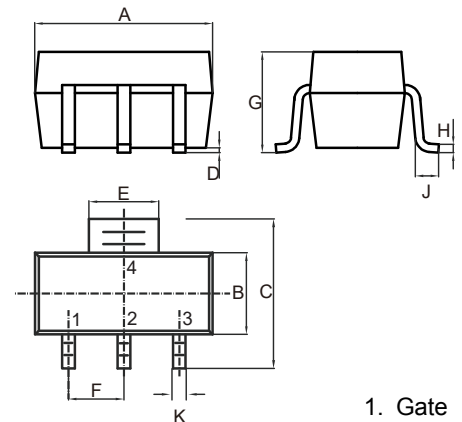
Internal Structure



Marking: T04N10

**N-CHANNEL
MOSFET**

SOT-223



- 1. Gate
- 2,4. Drain
- 3. Source

DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.248	0.264	6.30	6.70	
B	0.130	0.146	3.30	3.70	
C	0.264	0.287	6.70	7.30	
D	0.001	0.004	0.02	0.10	
E	0.114	0.122	2.90	3.10	
F	0.091		2.30		TYP.
G	---	0.071	---	1.80	
H	0.009	0.014	0.23	0.35	
J	0.030	---	0.75	---	
K	0.026	0.033	0.66	0.84	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
On Characteristics (Note 1)						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	2	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$		0.115	0.14	Ω
Dynamic Characteristics (Note 2)						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		690		pF
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			90		
Switching Characteristics (Note 2)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V, R_G=2.5\Omega, I_D=2A, V_{GS}=10V$		11		ns
Turn-On Rise Time	t_r			7.4		
Turn-Off Delay Time	$t_{d(off)}$			35		
Turn-Off Fall Time	t_f			9.1		
Total Gate Charge	Q_g	$V_{DS}=30V, I_D=3A, V_{GS}=10V$		15.5		nC
Gate-Source Charge	Q_{gs}			3.2		
Gate-Drain Charge	Q_{gd}			4.7		
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Drain-Source Diode Forward Current	I_S				9.6	A
Pulsed Drain-Source Diode Forward Current	I_{SM}				38.4	
Diode Forward Voltage (Note 1)	V_{SD}	$V_{GS}=0V, I_S=9A$			1.2	V

Note: 1. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

2. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

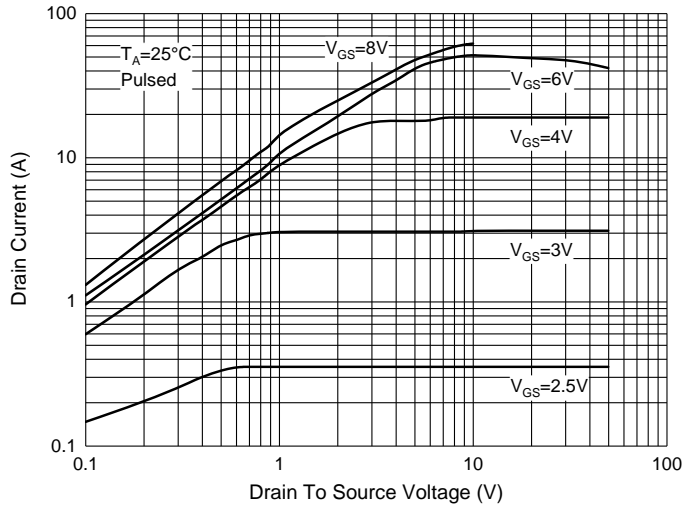


Fig. 2 - Transfer Characteristics

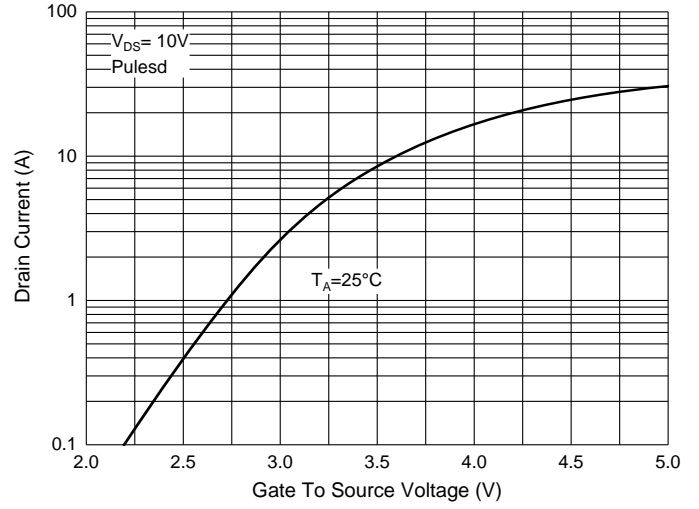


Fig. 3 - $R_{DS(ON)} - I_D$

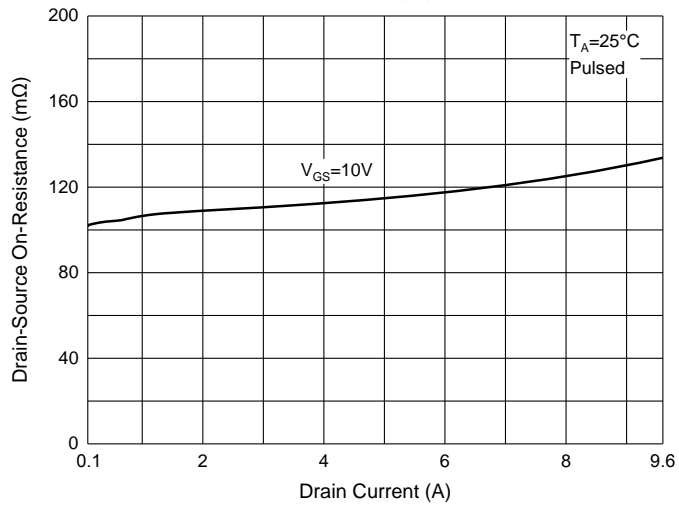


Fig. 4 - $R_{DS(ON)} - V_{GS}$

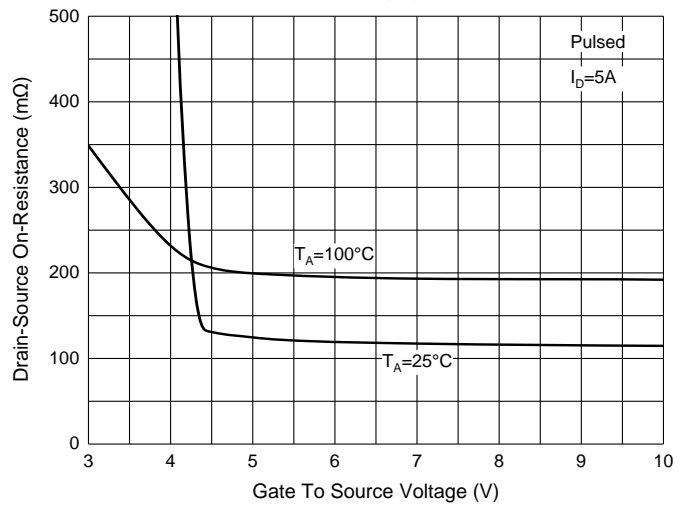


Fig. 5 - $I_S - V_{SD}$

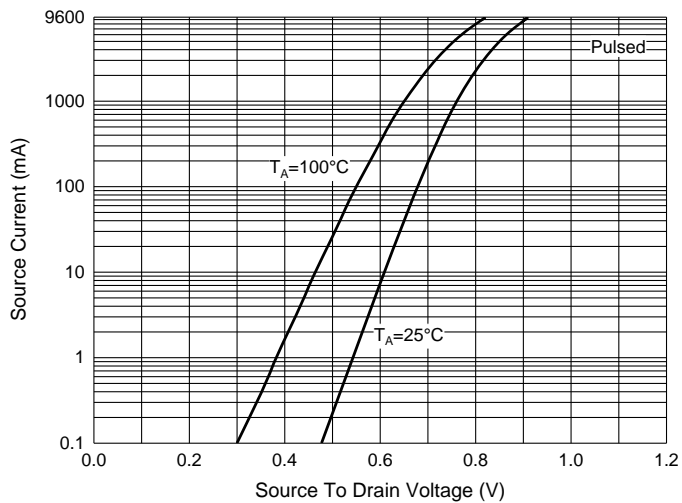
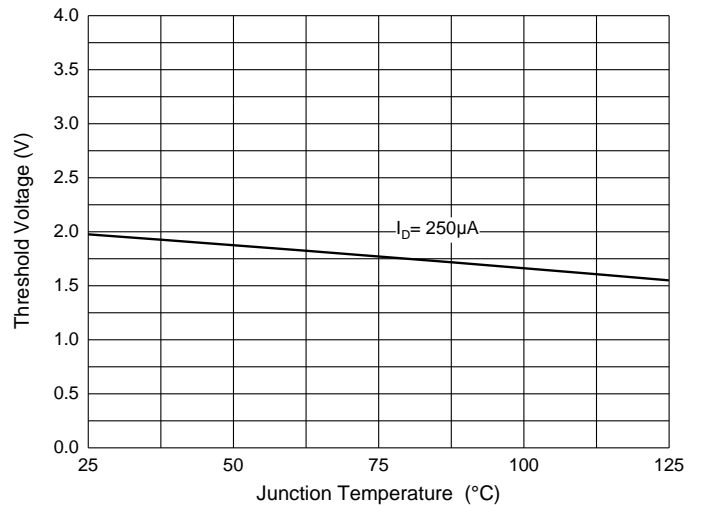


Fig. 6 - Threshold Voltage



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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