

Features

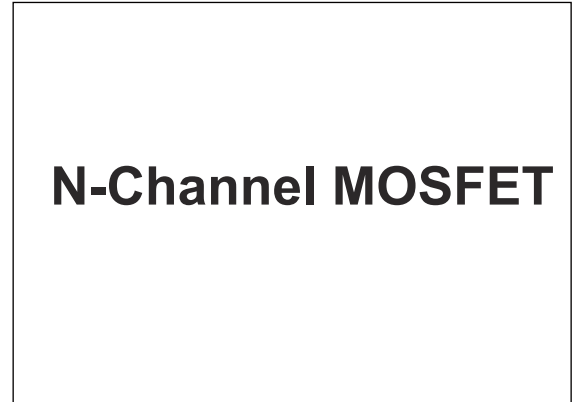
- Low On-Resistance
- Low Threshold Voltage
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device ⁽¹⁾
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Maximum Thermal Resistance: 1250°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	60	V
Gate -Source Voltage	V_{GS}	±20	V
Drain Current-Continuous @ $T_A=25^\circ\text{C}$	I_D	0.41	A
Drain Current-Continuous @ $T_A=85^\circ\text{C}$		0.30	A
Pulsed Drain Current	I_{DM}	1.2	A
Power Dissipation	P_D	0.1	W

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.



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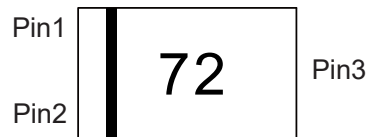
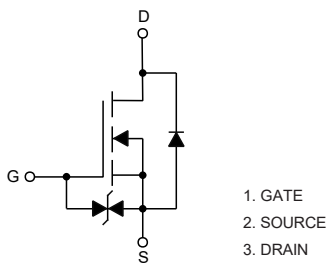
Top View Bar Denotes Gate and Source Side

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.018	0.022	0.45	0.55	
A1	0.000	0.002	0.00	0.05	
b	0.018	0.022	0.45	0.55	
b1	0.004	0.008	0.10	0.20	
c	0.005	0.007	0.12	0.18	
D	0.037	0.042	0.95	1.075	
E	0.022	0.026	0.55	0.675	
E1	0.006	0.010	0.15	0.25	
e	0.026 BSC		0.65BSC		
L	0.008	0.012	0.20	0.30	
L1	0.0002 REF		0.05 REF		

Suggested Solder Pad Layout

(mm)

Internal Structure and Marking Code



ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Static Characteristics							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60V			V	
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.3	1.4	2.3	V	
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 10	μA	
		$V_{DS}=0V, V_{GS}=\pm 5V$			± 1		
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			100	nA	
Drain-Source On-Resistance ⁽²⁾	$R_{DS(on)}$	$V_{GS}=10V, I_D=40mA$		1.2	1.5	Ω	
		$V_{GS}=4.5V, I_D=35mA$		1.3	1.8		
Forward Transconductance ⁽²⁾	g_{fs}	$V_{DS}=5V, I_D=40mA$	100			mS	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=300mA$		0.84	1.1	V	
Dynamic Characteristics							
Input Capacitance ⁽³⁾	C_{iss}	$V_{DS}=40V, V_{GS}=0V, f=1MHz$		41	80	pF	
Output Capacitance ⁽³⁾	C_{oss}			3.6	7		
Reverse Transfer Capacitance ⁽³⁾	C_{rss}			2.9	5.6		
Gate Resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1MHz$		81	200	Ω	
Total Gate Charge	Q_g	$V_{GS}=4.5V$	$V_{DS}=50V, I_D=1A$		0.72	1.5	nC
		$V_{GS}=10V$			1.41	2.8	
Gate-Source Charge	Q_{gs}				0.24	0.4	
Gate-Drain Charge	Q_{gd}				0.24	0.5	
Turn-on Delay Time ⁽³⁾	$t_{d(on)}$	$V_{DS}=50V, I_D=1A, V_{GS}=10V, R_G=6\Omega$		3.98	10	ns	
Turn-on Rise Time ⁽³⁾	t_r			4.95	10		
Turn-off Delay Time ⁽³⁾	$t_{d(off)}$			18.52	40		
Turn-off Rise Time ⁽³⁾	t_f			11.94	25		

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

3. These Parameters Have no Way to Verify.

Curve Characteristics

Fig. 1 - Output Characteristics

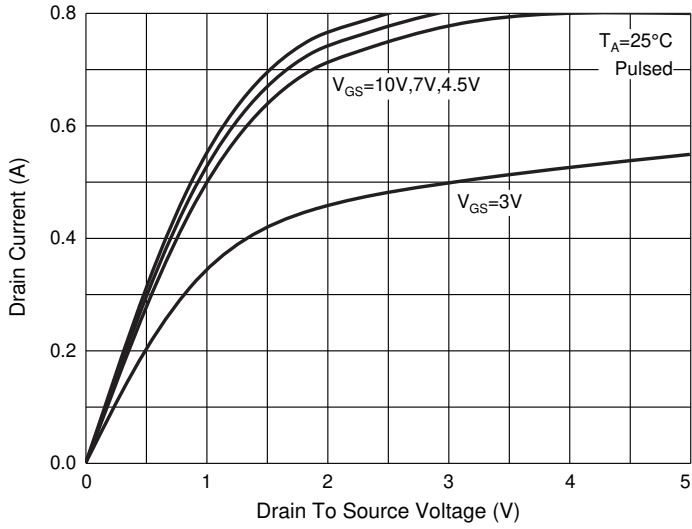


Fig. 2 - Transfer Characteristics

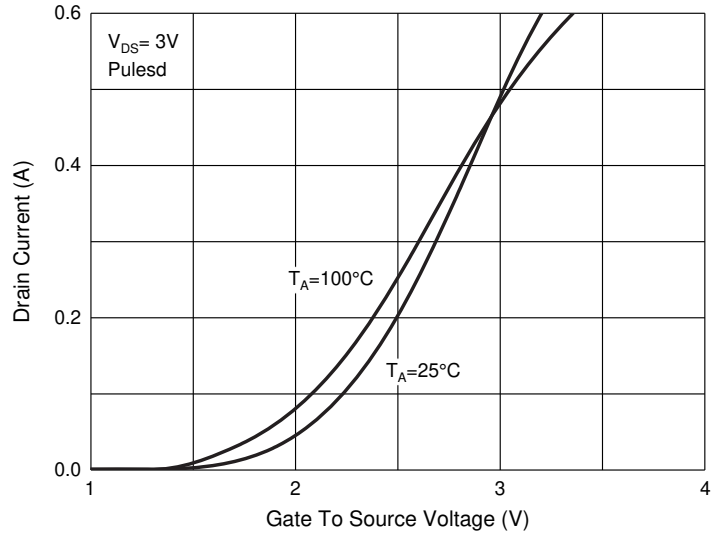


Fig. 3 - $R_{DS(ON)} - I_D$

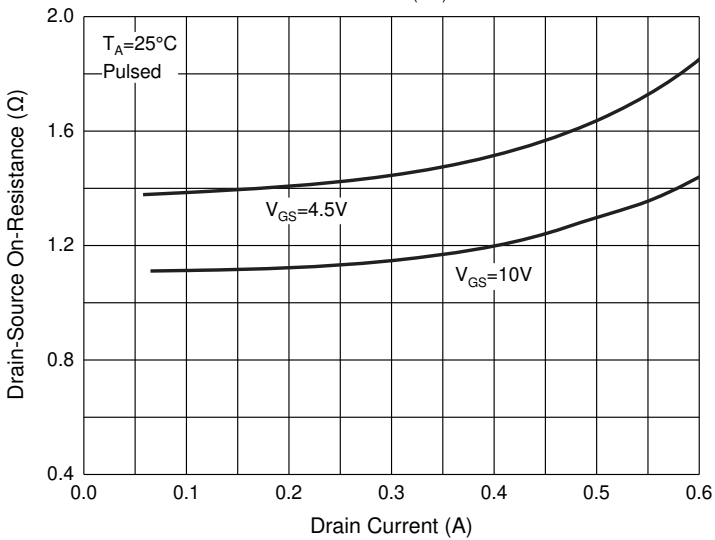


Fig. 4 - $R_{DS(ON)} - V_{GS}$

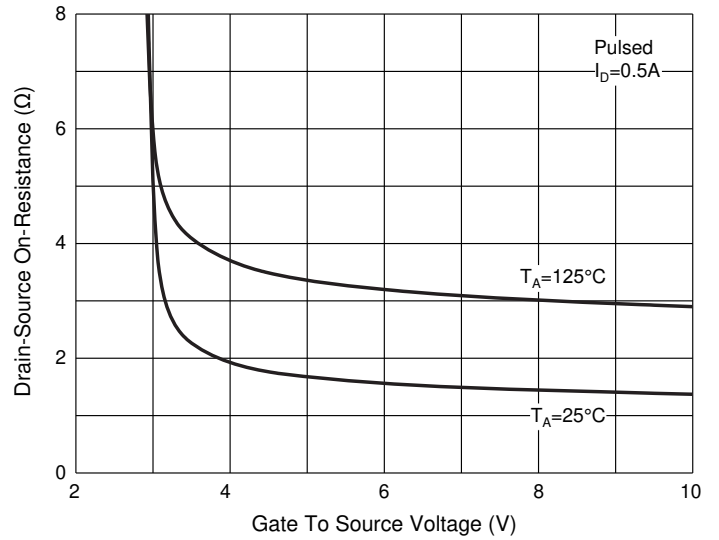


Fig. 5 - $I_S - V_{SD}$

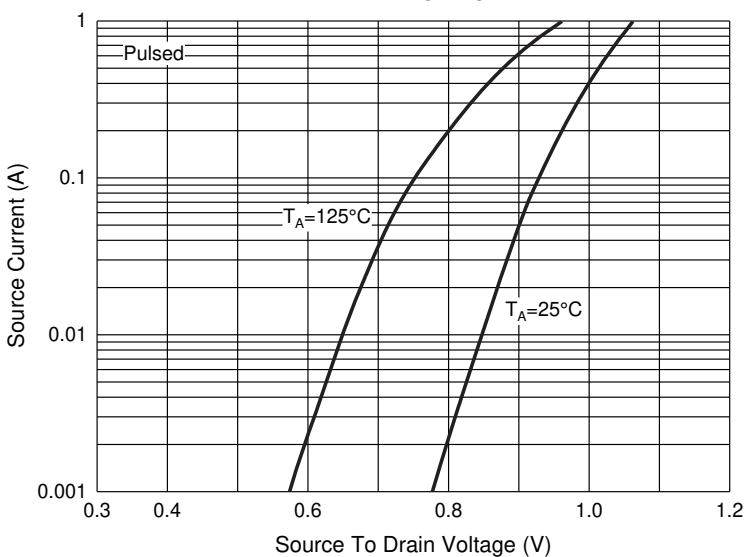
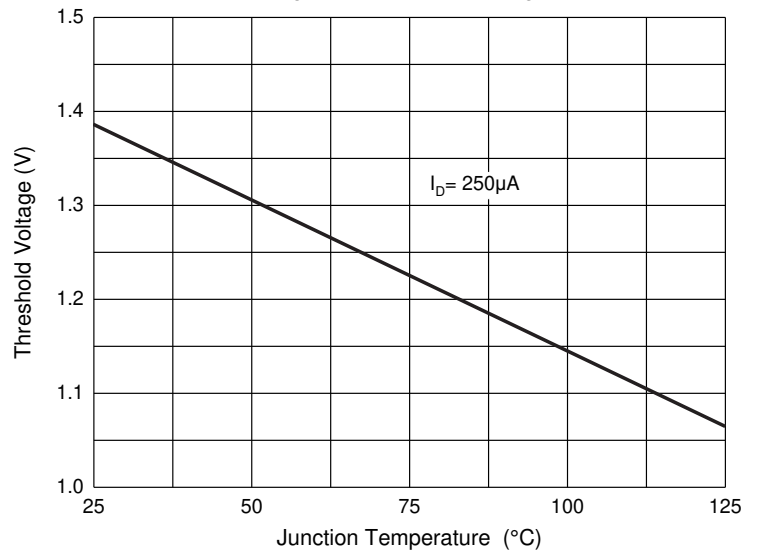


Fig. 6 - Threshold Voltage



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 10Kpcs/Reel

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