

Features

- Operated at Low Logic Level Gate Drive
- N-Channel Switch with Low $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- ESD Human Body Model 2000V
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

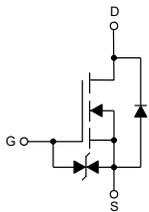
Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Maximum Thermal Resistance: 138°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	20V	V
Gate -Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous ^(Note 2)	I_D	0.75	A
Pulsed Drain Current	I_{DM}	2.8	A
Power Dissipation	P_D	0.9	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.

Internal Structure and Marking Code

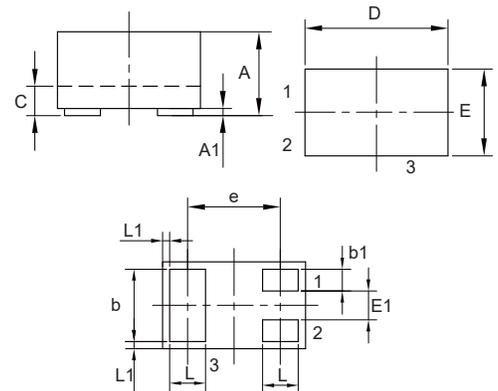


1. GATE
2. SOURCE
3. DRAIN



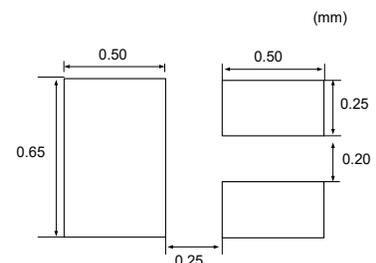
N-Channel MOSFET

DFN1006-3



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		0.65		TYP.
L	0.008	0.012	0.20	0.30	
L1	0.0002		0.05		TYP.

Suggested Solder Pad Layout



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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.35	0.75	1.1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=500mA$			300	m Ω
		$V_{GS}=2.5V, I_D=400mA$			350	m Ω
		$V_{GS}=1.8V, I_D=200mA$			700	m Ω
Diode Forward Voltage ^(Note3)	V_{SD}	$V_{GS}=0V, I_S=500mA$			1.2	V
Dynamic Characteristics^(Note4,5)						
Input Capacitance	C_{iss}	$V_{DS}=16V, V_{GS}=0V, f=1MHz$		33		pF
Output Capacitance	C_{oss}			20		
Reverse Transfer Capacitance	C_{rss}			10		
Total Gate Charge	Q_g	$V_{GS}=4.5V, V_{DS}=10V, I_D=1A$		0.8		nC
Gate-Source Charge	Q_{gs}			0.29		
Gate-Drain Charge	Q_{gd}			0.16		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DS}=10V, I_{DS}=0.5A, R_G=10\Omega$		4		nS
Turn-On Rise Time	t_r			18		
Turn-Off Delay Time	$t_{d(off)}$			11.6		
Turn-Off Fall Time	t_f			24		

Note:

2. Surface Mounted on FR4 board using the minimum recommended pad size.
3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$.
4. Guaranteed by design, not subject to productin
5. Switching characteristics are independent of operating junction temperatures.

Curve Characteristics

Fig. 1 - Output Characteristics

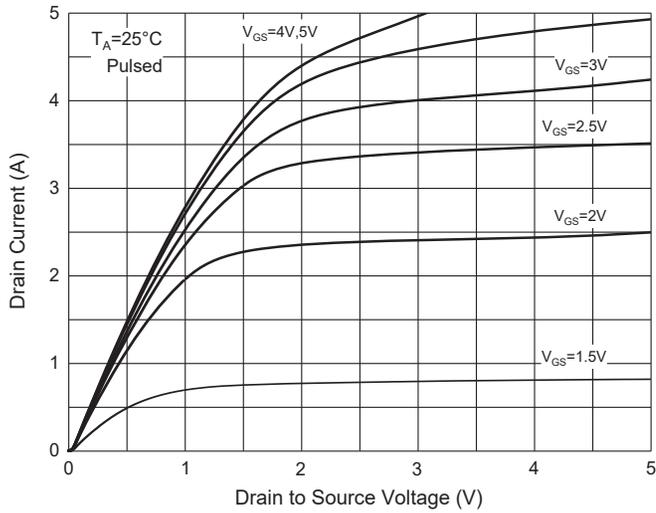


Fig. 2 - Transfer Characteristics

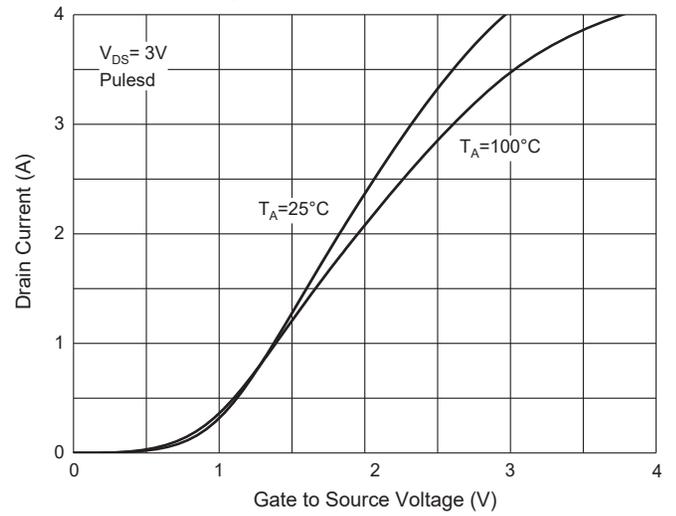


Fig. 3 - $R_{DS(ON)} - I_D$

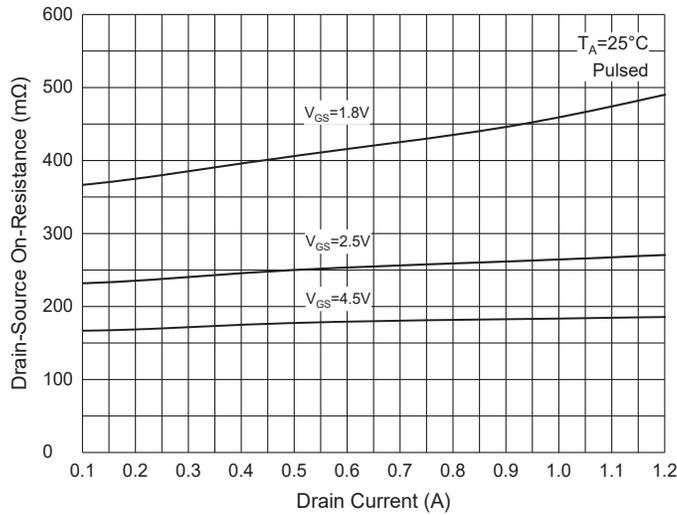


Fig. 4 - Threshold Voltage

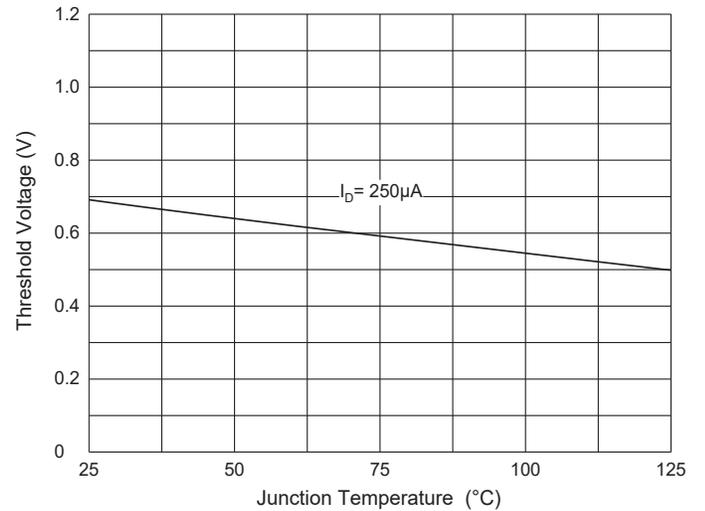


Fig. 5 - Gate Charge

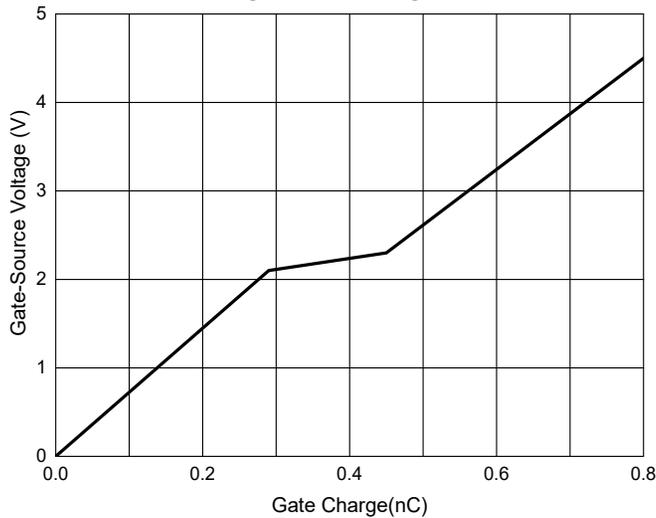
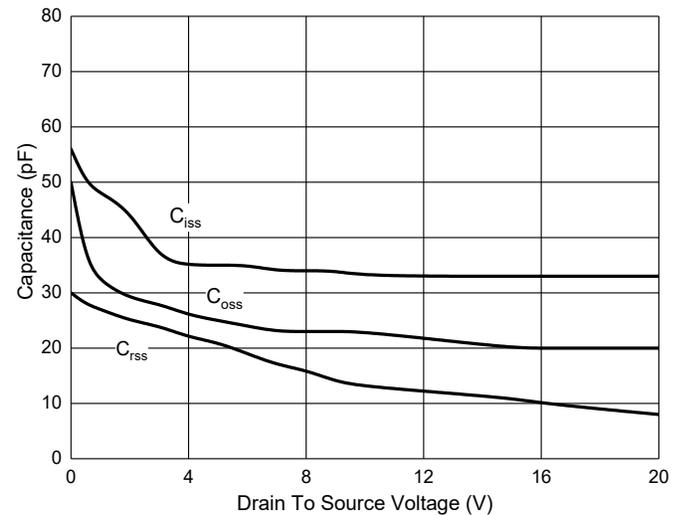


Fig. 6 - Capacitance Characteristics



Ordering Information

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

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