

Features

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

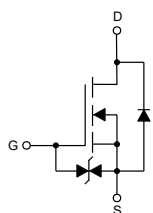
Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Maximum Thermal Resistance: 500°C/W Junction to Ambient

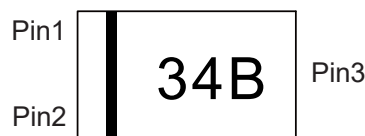
Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	20V	V
Gate -Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous ⁽²⁾	I_D	0.75	A
Pulsed Drain Current	I_{DM}	1.8	A
Power Dissipation ⁽³⁾	P_D	0.25	W

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

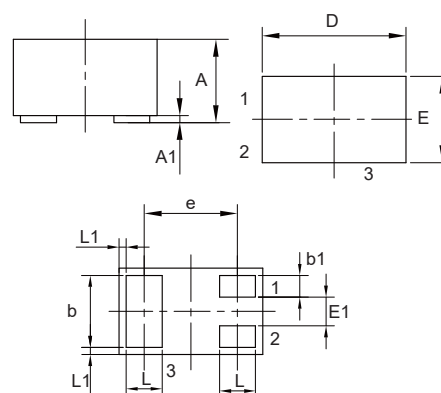


1. GATE
2. SOURCE
3. DRAIN



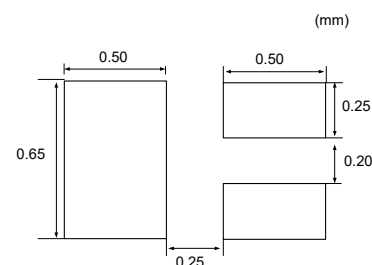
N-Channel MOSFET

DFN1006-3A



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.013	0.016	0.34	0.40	
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	
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 =250μA	20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.35	0.75	1.1	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1.0	μA
Gate-body Leakage Current	I _{GSS}	V _{GS} =± 10V, V _{DS} =0V			±5	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =500mA		0.25	0.5	Ω
		V _{GS} =2.5V, I _D =150mA		0.30	0.7	
		V _{GS} =1.8V, I _D =150mA		0.37	0.9	
Forward transconductance	g _{FS}	V _{DS} =10V, I _D =150mA	150			mS
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =150mA			1.2	V
Dynamic Characteristics						
Input Capacitance ⁽⁴⁾	C _{iss}	V _{DS} =16V,V _{GS} =0V, f=1MHz		79	120	pF
Output Capacitance ⁽⁴⁾	C _{oss}			13	20	
Reverse Transfer Capacitance ⁽⁴⁾	C _{rss}			9	15	
Switching Characteristics						
Turn-on Delay Time ⁽⁵⁾	t _{d(on)}	V _{DS} =10V,V _{GS} =4.5V,I _D =500 mA, R _{GEN} =10Ω		6.7		ns
Turn-off Delay Time ⁽⁵⁾	t _{d(off)}			17.3		
Rise Time ⁽⁵⁾	t _r			4.8		
Fall Time ⁽⁵⁾	t _f			7.4		
Total Gate Charge ⁽⁵⁾	Q _g	V _{DS} =10V,V _{GS} =4.5V,I _D =500 mA,		0.85		nC
Gate-Source Charge ⁽⁵⁾	Q _{gs}			0.25		
Gate-Drain Charge ⁽⁵⁾	Q _{gd}			0.12		

Note:

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

Curve Characteristics

Fig. 1 - Output Characteristics

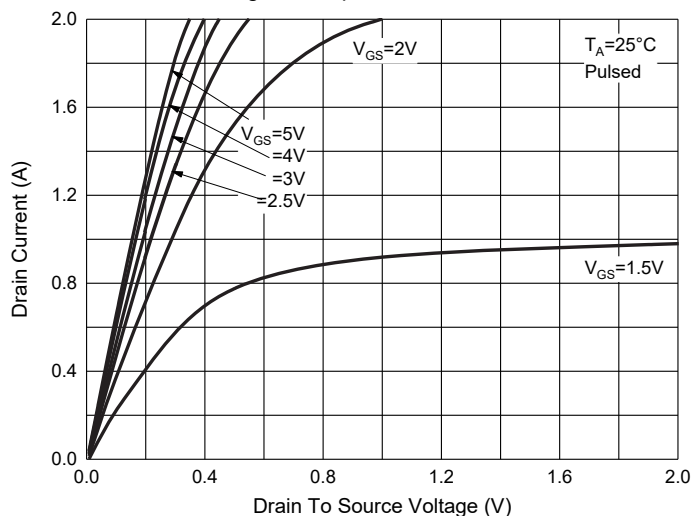


Fig. 2 - Transfer Characteristics

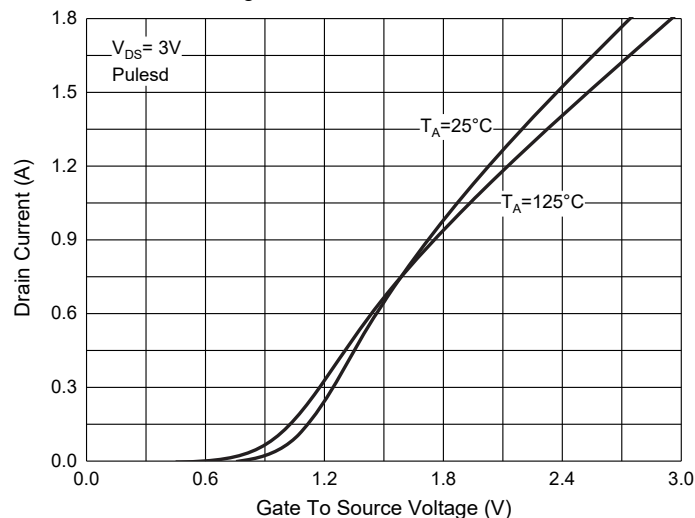


Fig. 3 - $R_{DS(ON)} - I_D$

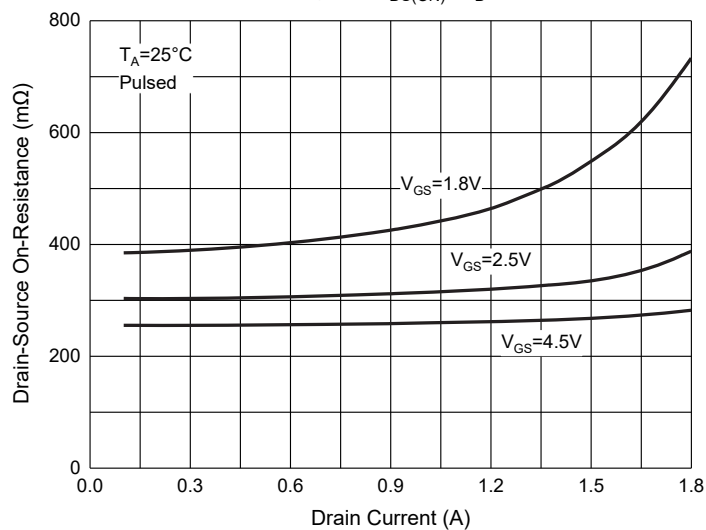


Fig. 4- $R_{DS(ON)} - V_{GS}$

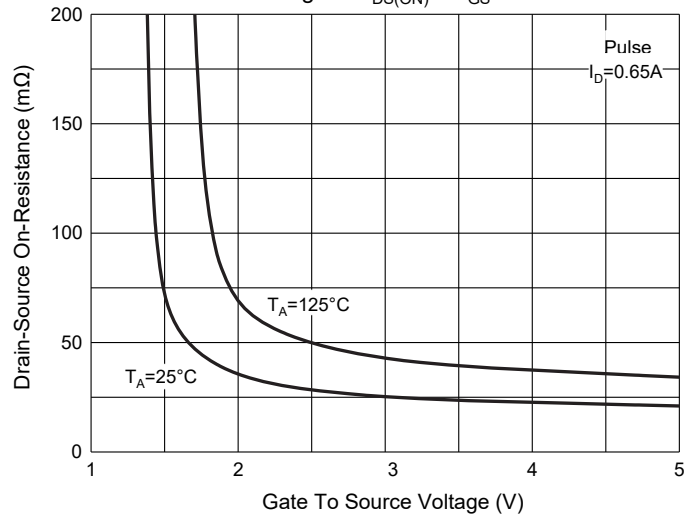


Fig. 5 - $I_S - V_{SD}$

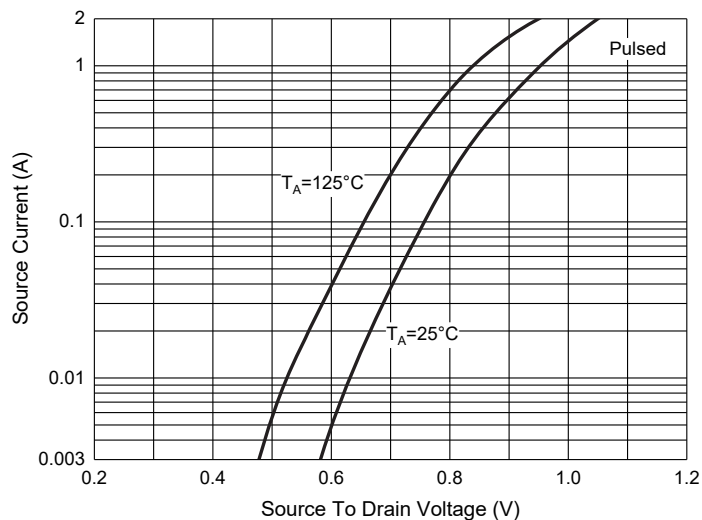
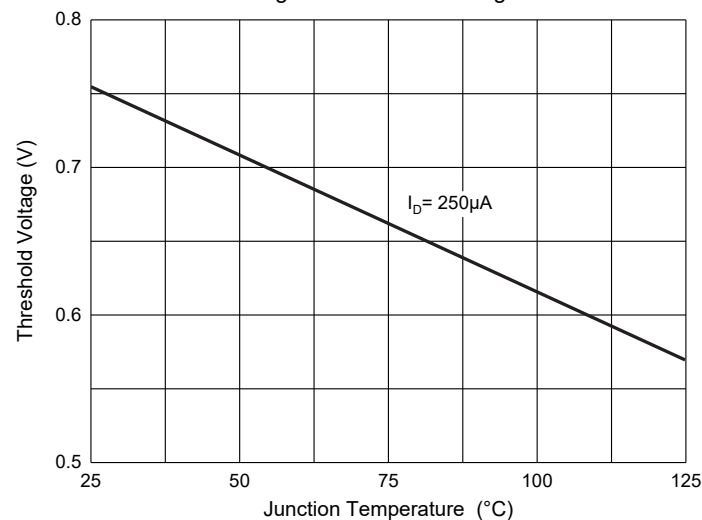


Fig. 6 - Threshold Voltage



Ordering Information

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

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