

## Features

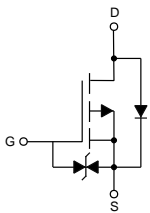
- Operated at Low Logic Level Gate Drive
- P-Channel Switch with Low  $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering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

## Maximum Ratings

- Operating Junction Temperature Range:  $-55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- Storage Temperature Range:  $-55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- Maximum Thermal Resistance:  $1250^{\circ}\text{C/W}$  Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current-Continuous <sup>(1)</sup>	$I_D$	-0.66	A
Pulsed Drain Current	$I_{DM}$	-1.2	A
Power Dissipation <sup>(2)</sup>	$P_D$	0.10	W

## Internal Structure

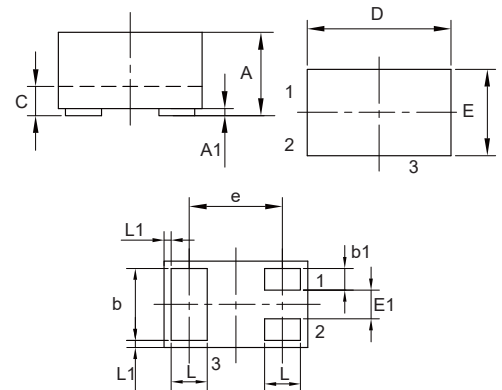


1. GATE
2. SOURCE
3. DRAIN

Marking:39

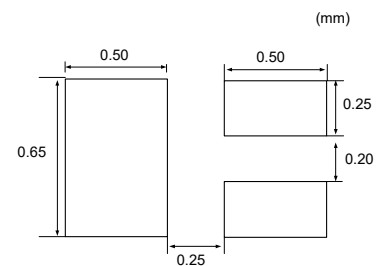
# P-Channel MOSFET

## 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
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.35	-0.61	-1.1	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-20V, V_{GS}=0V$			-1.0	$\mu A$
Gate-body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$			$\pm 20$	$\mu A$
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1000mA$		0.45	0.52	$\Omega$
		$V_{GS}=-2.5V, I_D=-800mA$		0.65	0.78	
		$V_{GS}=-1.8V, I_D=-500mA$		0.95		
Forward transconductance	$g_{FS}$	$V_{DS}=-10V, I_D=-540mA$		1.2		S
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-500mA$			-1.2	V
<b>Dynamic Characteristics</b>						
Input Capacitance <sup>(3)</sup>	$C_{iss}$	$V_{DS}=-16V, V_{GS}=0V, f=1MHz$		113		pF
Output Capacitance <sup>(3)</sup>	$C_{oss}$			15		
Reverse Transfer Capacitance <sup>(3)</sup>	$C_{rss}$			9		
<b>Switching Characteristics</b>						
Turn-on Delay Time <sup>(4)</sup>	$t_{d(on)}$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-200mA,$ $R_{GEN}=10\Omega$		9.0		ns
Turn-off Delay Time <sup>(4)</sup>	$t_{d(off)}$			32.6		
Rise Time <sup>(4)</sup>	$t_r$			5.7		
Fall Time <sup>(4)</sup>	$t_f$			20.3		

**Note:**

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

Curve Characteristics

Fig. 1 - Output Characteristics

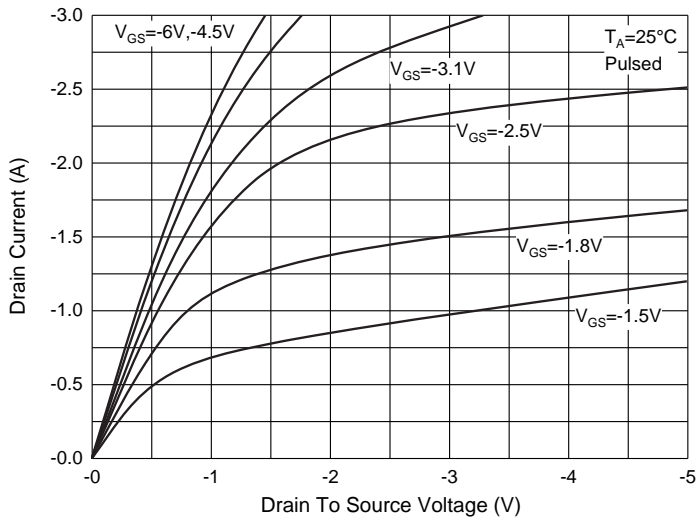


Fig. 2 - Transfer Characteristics

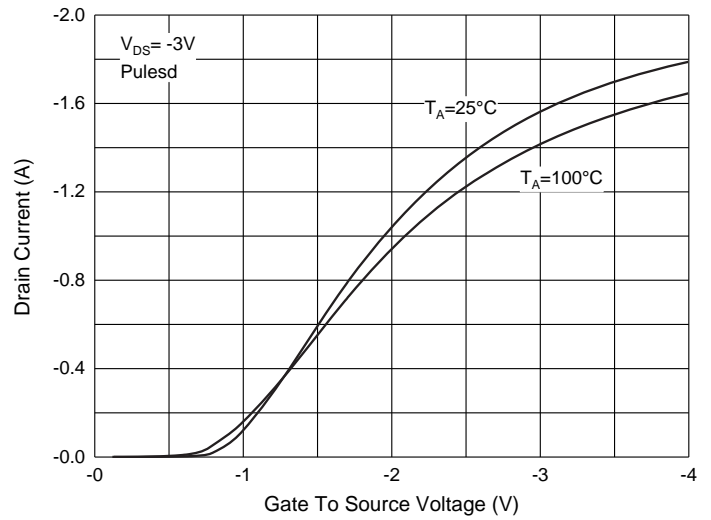


Fig. 3 -  $R_{DS(ON)} - I_D$

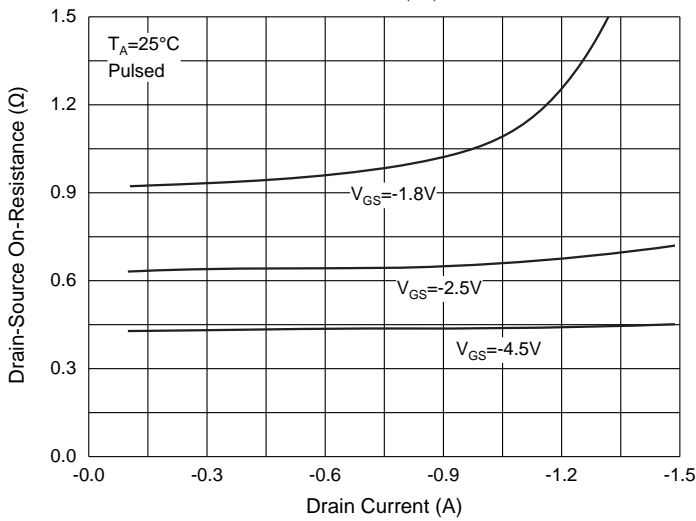


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

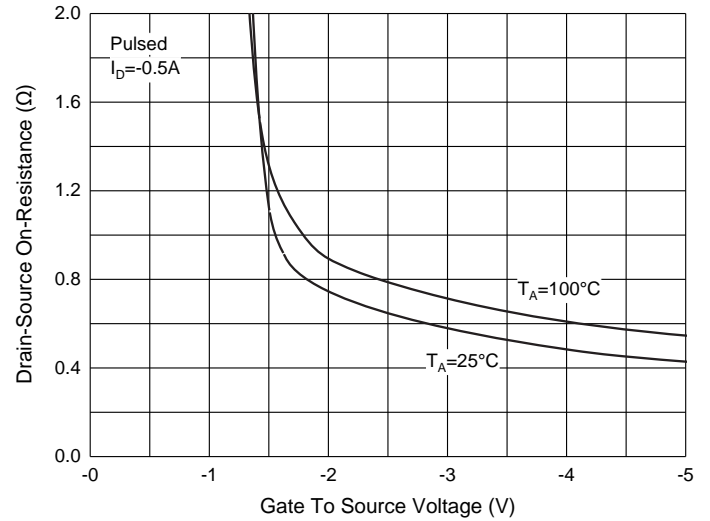


Fig. 5 -  $I_S - V_{SD}$

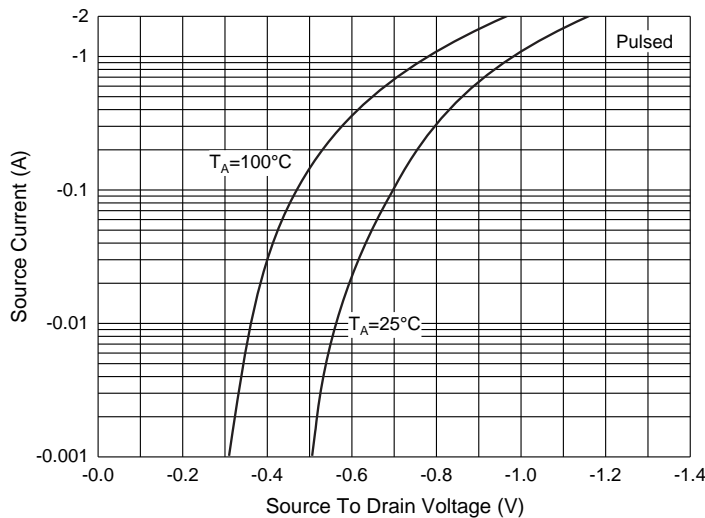
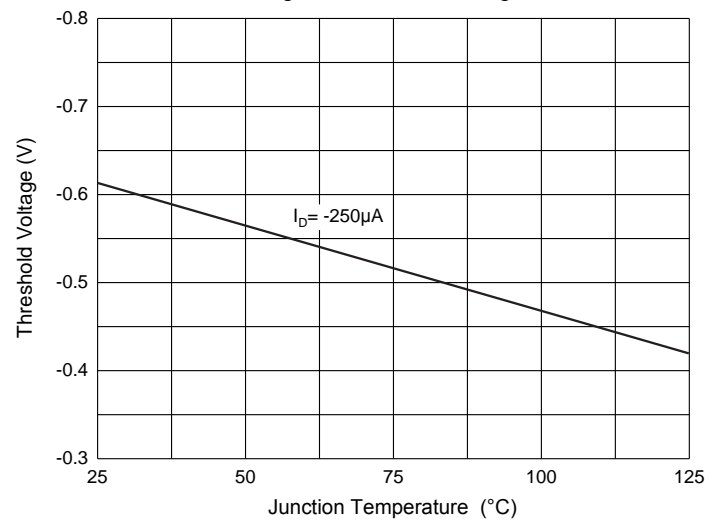


Fig. 6 - Threshold Voltage



## Ordering Information

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

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

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