

## Features

- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Advanced Trench MOSFET Process Technology
- 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

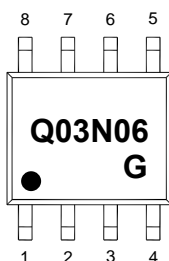
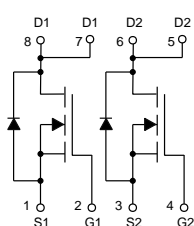
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 73.5°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current	$I_D$	3.0	A
Pulsed Drain Current (Note 3)	$I_{DM}$	10	A
Total Power Dissipation	$P_D$	1.7	W

### Note:

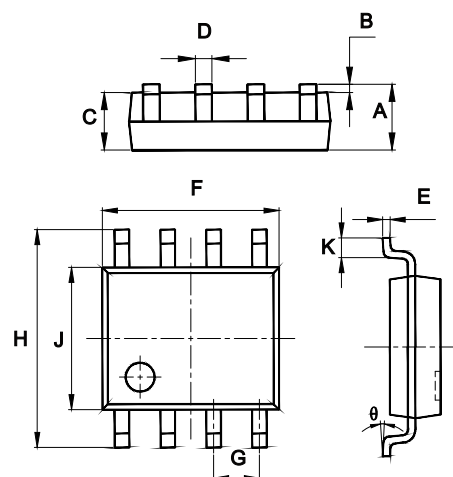
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in2 FR-4 board with 2oz.
3. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 0.5\%$ .

## Internal Structure and Marking Code



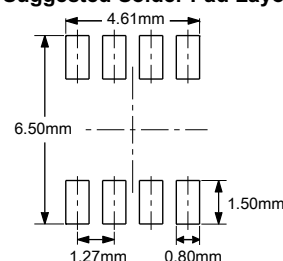
## Dual N-Channel Power MOSFET

### SOP-8



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.35	1.75	
B	0.004	0.010	0.10	0.25	
C	0.053	0.061	1.35	1.55	
D	0.013	0.020	0.33	0.51	
E	0.007	0.010	0.17	0.25	
F	0.185	0.200	4.70	5.10	
G	0.050		1.270		TYP.
H	0.228	0.244	5.80	6.20	
J	0.150	0.157	3.80	4.00	
K	0.016	0.050	0.40	1.27	
$\theta$	0°	8°	0°	8°	

### Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	60	65		V
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1	μA
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.8	1.35	1.4	V
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =3A		75	105	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		85	125	
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =3A			1.2	v
Forward Tranconductance	g <sub>FS</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =2A	1.4			S
Diode Forward Current	I <sub>S</sub>				3.0	A
Dynamic Characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =30V,V <sub>GS</sub> =0V,f =1MHz		247		pF
Output Capacitance	C <sub>oss</sub>			34		
Reverse Transfer Capacitance	C <sub>rss</sub>			19.5		
Switching Characteristics						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =30V,V <sub>GS</sub> =4.5V,I <sub>D</sub> =3A		6		nC
Gate-Source Charge	Q <sub>gs</sub>			1		
Gate-Drain Charge	Q <sub>gd</sub>			1.3		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> =10V,V <sub>DD</sub> =30V,I <sub>D</sub> =1.5A, R <sub>GEN</sub> =1Ω		6		ns
Turn-On Rise Time	t <sub>r</sub>			15		
Turn-Off Delay Time	t <sub>d(off)</sub>			15		
Turn-Off Fall Time	t <sub>f</sub>			10		

## Curve Characteristics

Fig. 1 - Output Characteristics

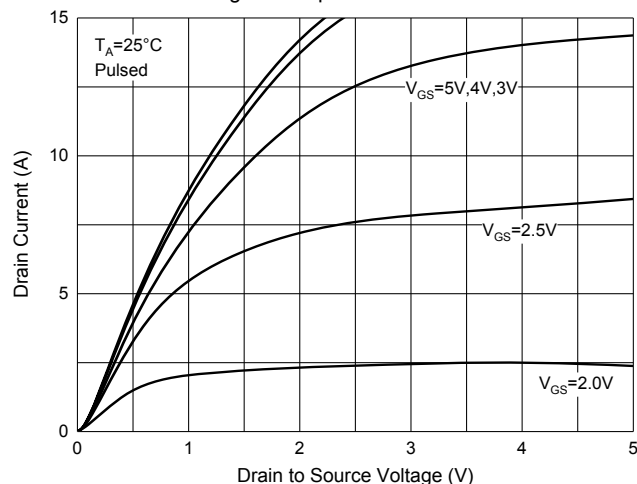


Fig. 2 - Transfer Characteristics

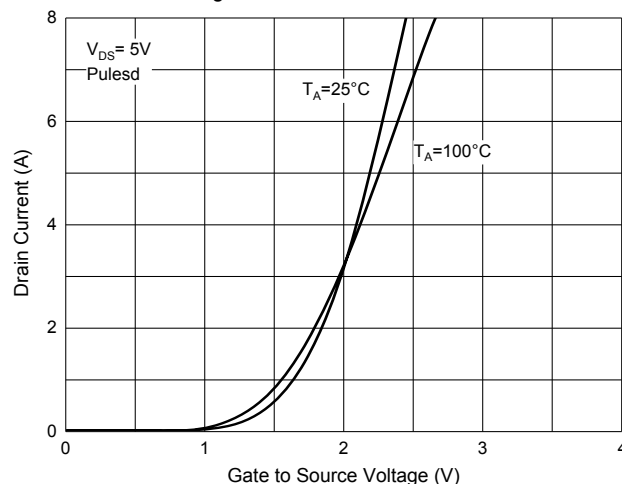


Fig. 3 -  $R_{DS(ON)} - I_D$

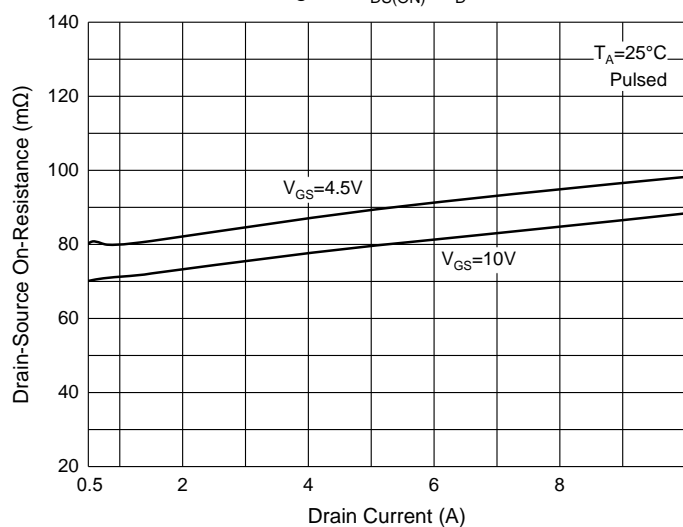


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

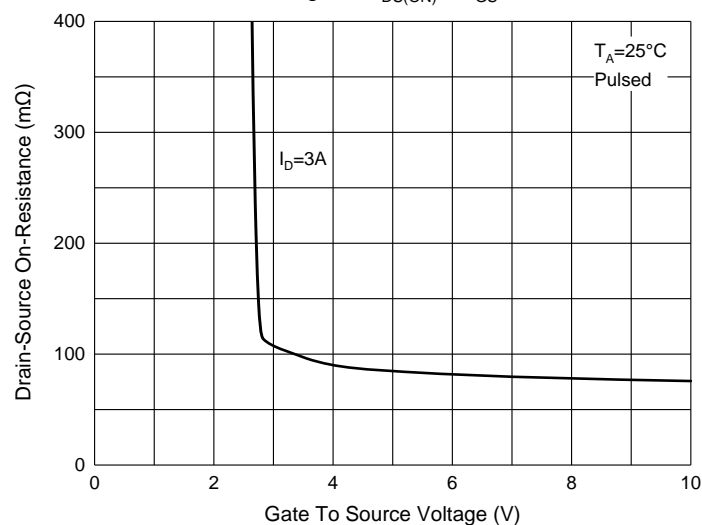


Fig. 5 -  $I_S - V_{SD}$

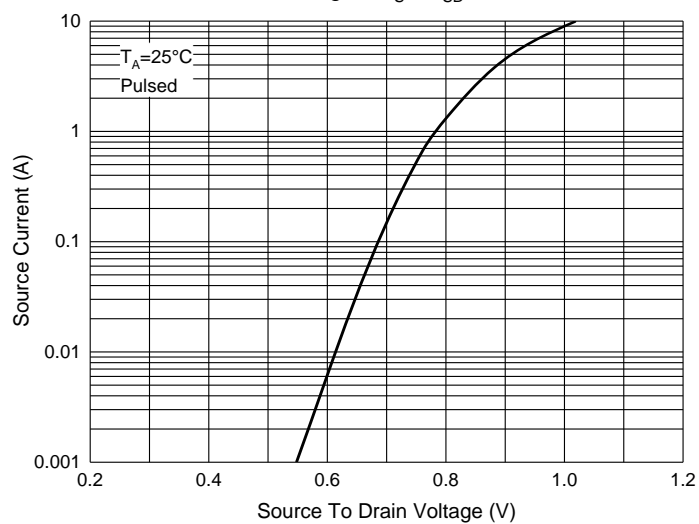
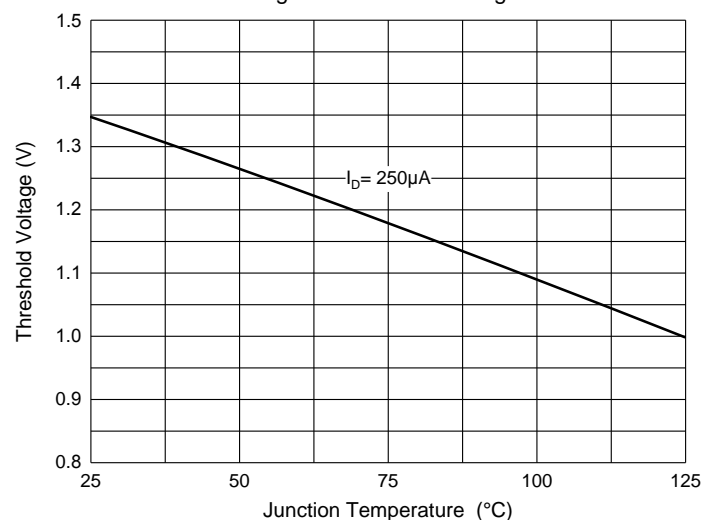


Fig. 6 - Threshold Voltage



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 4Kpcs/Reel

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