

Features

- 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

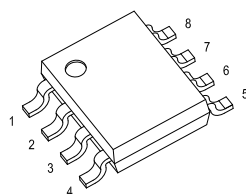
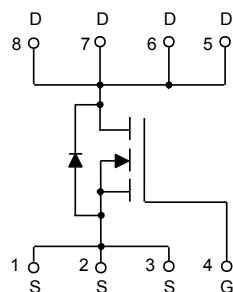
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 89°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	30	V
Gate -Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	10	A
Single Pulsed Avalanche Energy ^(Note1)	E_{AS}	105	mJ
Pulsed Drain Current	I_{DM}	40	A
Power Dissipation	P_D	1.4	W

Notes :

1. E_{AS} condition: $V_{DD}=50V, L=0.5mH, R_G=25\Omega$, Starting $T_J = 25^\circ C$

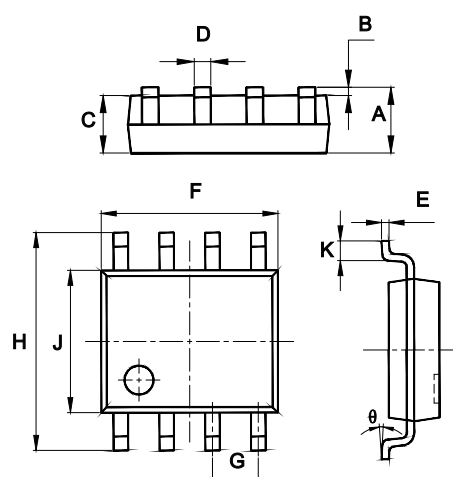
Internal Structure



Marking: Q4406

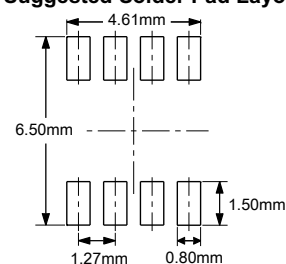
N-Channel Enhancement Mode Field Effect Transistor

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	
θ	0°	8°	0°	8°	

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	30			V
Gate-Threshold Voltage ^(Note1)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	3.0	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =± 20V, V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Drain-Source On-Resistance ^(Note1)	R _{DS(on)}	V _{GS} =10V, I _D =12A		7.6	12	mΩ
		V _{GS} =4.5V, I _D =10A		11	16	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =10A	15			S
Dynamic Characteristics ^(Note2)						
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V, f=1MHz		1550		pF
Output Capacitance	C _{oss}			300		
Reverse Transfer Capacitance	C _{rss}			180		
Switching Characteristics ^(Note2)						
Turn-On Delay Time	t _{d(on)}	V _{DD} =25V,V _{GS} =10V, I _D =1A , R _{GEN} =6Ω,R _L =6.7Ω		30		ns
Turn-On Rise Time	t _r			20		
Turn-Off Delay Time	t _{d(off)}			100		
Turn-Off Fall Time	t _f			80		
Total Gate Charge	Q _g	V _{DS} =15V,I _D =10A,V _{GS} =5.0V		13		nC
Gate-Source Charge	Q _{gs}			5.5		
Gate-Drain Charge	Q _{gd}			3.5		
Source-Drain Diode characteristics						
Drain-Source Diode Forward Current	I _S				10	A
Diode Forward voltage ^(Note1)	V _{SD}	V _{GS} =0V,I _S =10A			1.2	V
Pulsed drain-source diode forward current	I _{SM}				40	A

Notes:

- 1.Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
- 2.Guaranteed by design, not subject to production testing.

Curve Characteristics

Fig. 1 - Output Characteristics

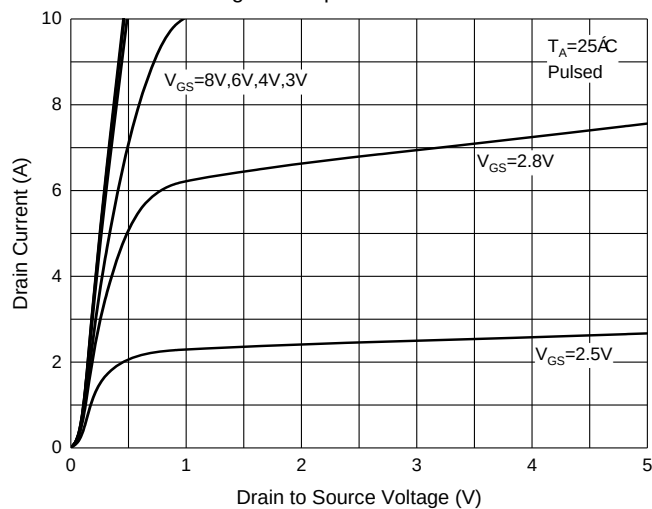


Fig. 2 - Transfer Characteristics

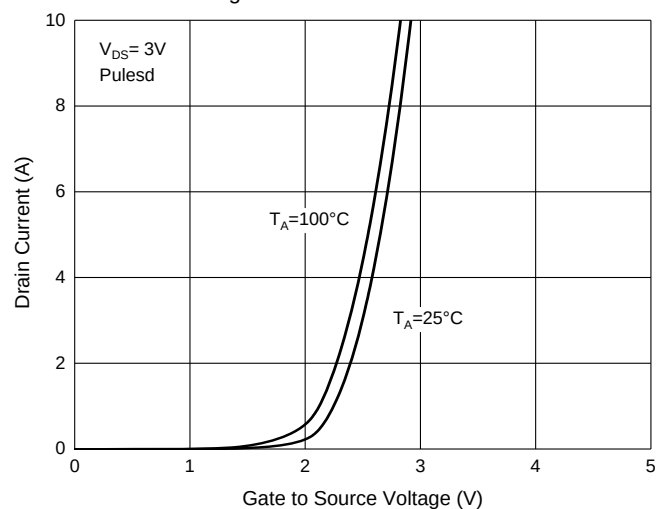


Fig. 3 - $R_{DS(ON)} - I_D$

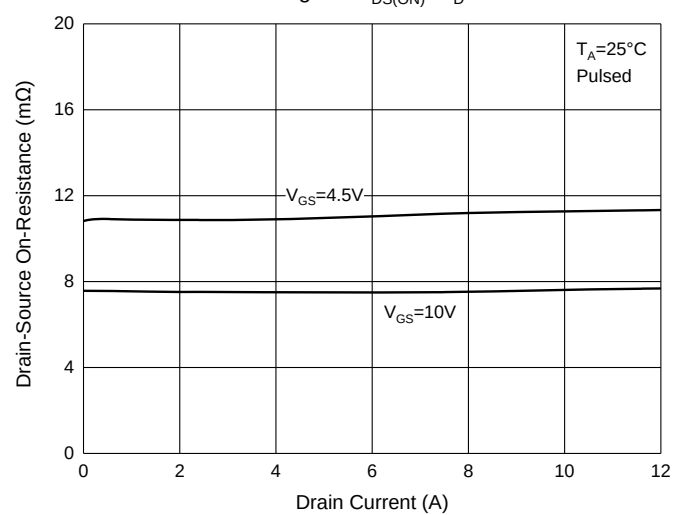


Fig. 4 - $R_{DS(ON)} - V_{GS}$

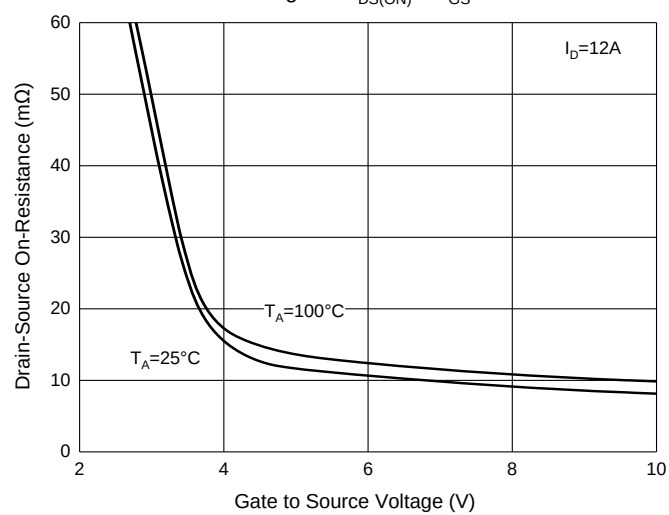


Fig. 5 - $I_S - V_{SD}$

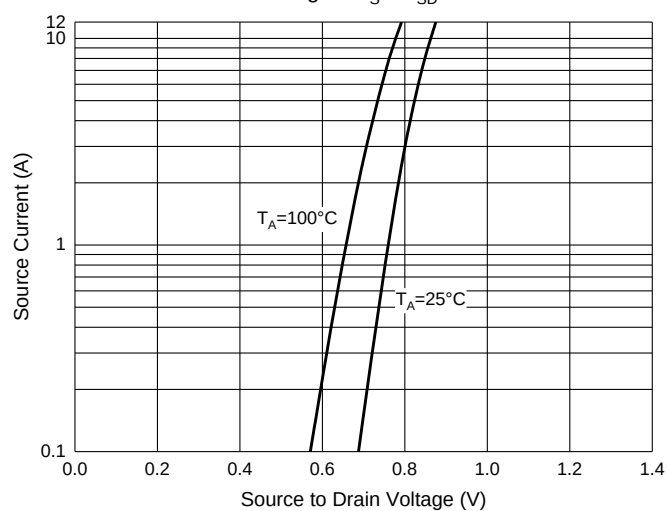
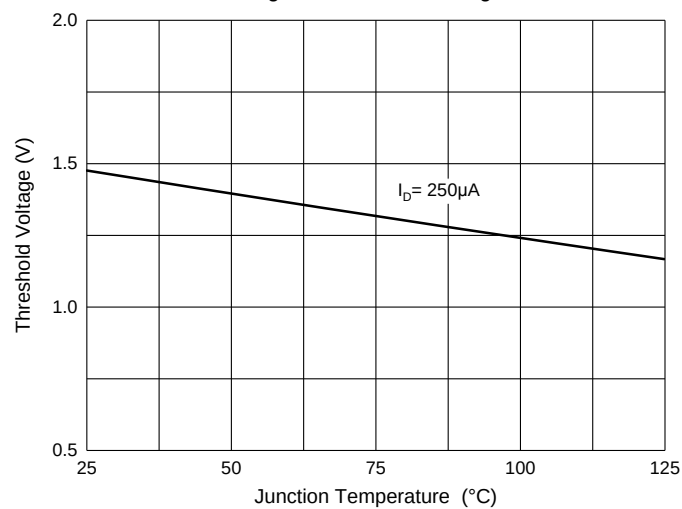


Fig. 6 - Threshold Voltage



Ordering Information

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

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

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