



Micro Commercial Components

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 20736 Marilla Street Chatsworth
 CA 91311
 Phone: (818) 701-4933
 Fax: (818) 701-4939

MCQ4406

N -Channel Enhancement Mode Field Effect Transistor

Features

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/Rohs Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: Q4406

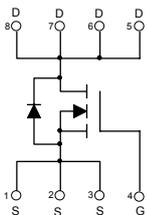
Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	10	A
Pulsed Drain Current	I_{DM}	40	A
Single Pulsed Avalanche Energy ⁽¹⁾	E_{AS}	105	mJ
Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	89	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	

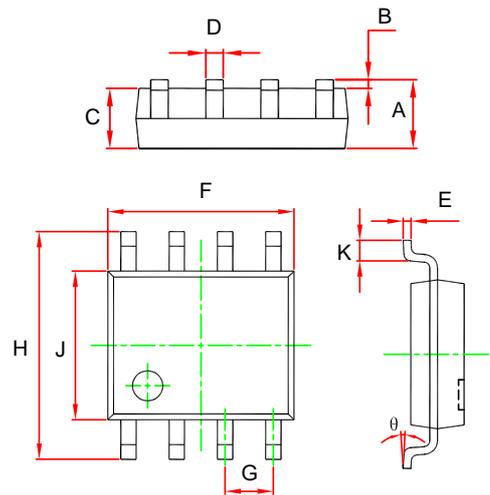
Notes :

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

Equivalent Circuit



SOP-8



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.350	1.750	
B	0.004	0.010	0.100	0.250	
C	0.053	0.061	1.350	1.550	
D	0.013	0.020	0.330	0.510	
E	0.007	0.010	0.170	0.250	
F	0.189	0.197	4.800	5.000	
G	0.050 (BSC)		1.270 (BSC)		
H	0.228	0.244	5.800	6.200	
J	0.150	0.157	3.800	4.000	
K	0.016	0.050	0.400	1.270	
θ	0 $^{\circ}$	8 $^{\circ}$	0 $^{\circ}$	8 $^{\circ}$	

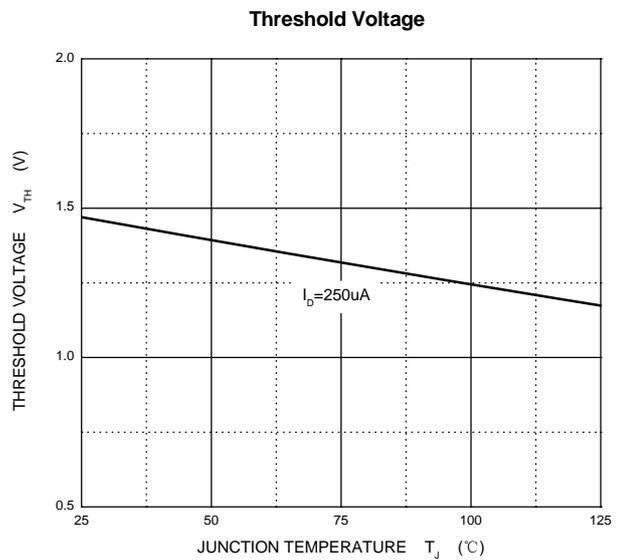
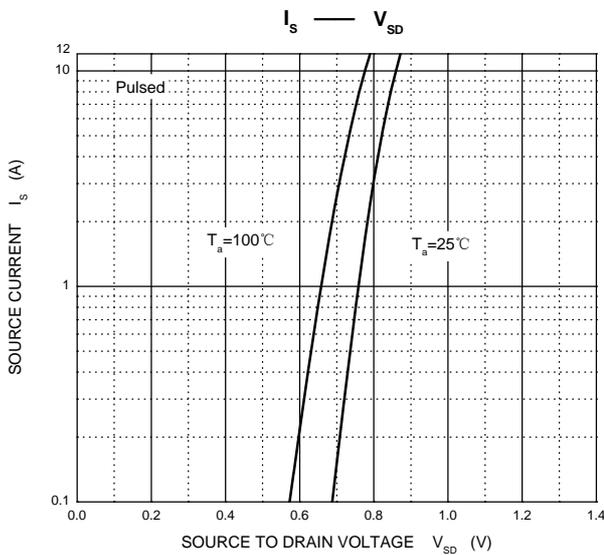
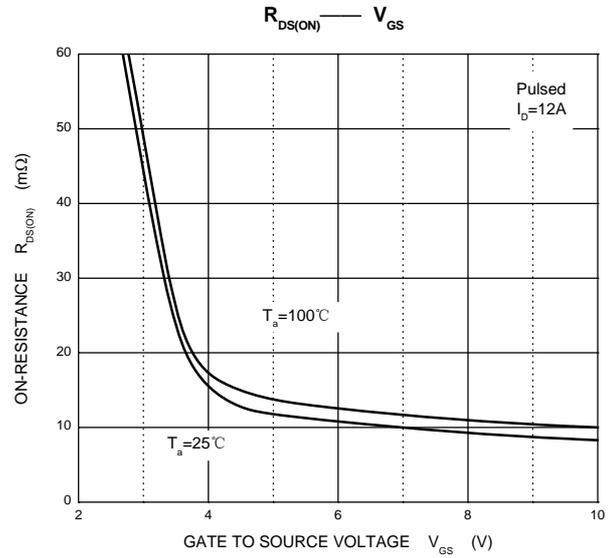
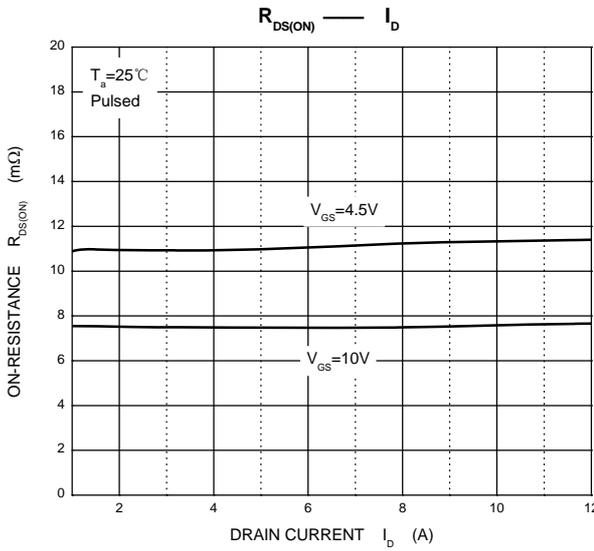
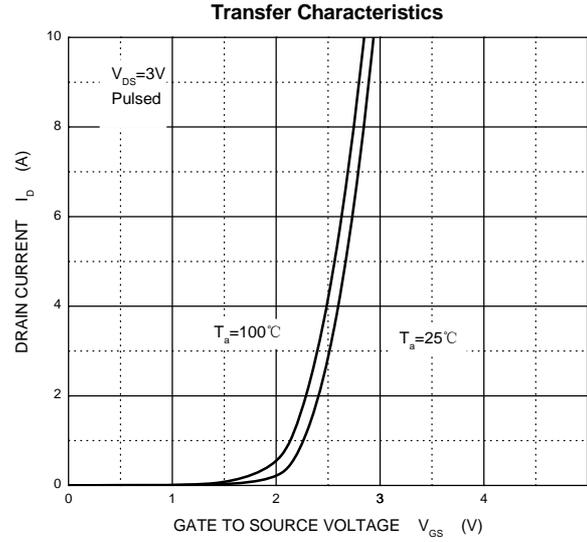
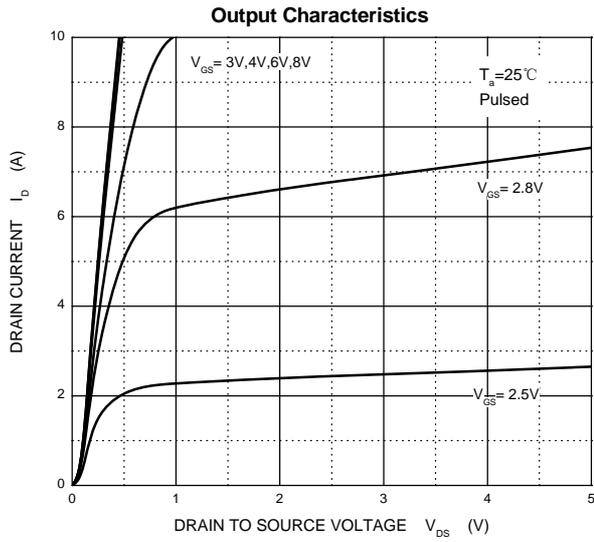
Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
On characteristics (note1)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	3.0	V
Static drain-source on-state resistance	R _{DS(on)}	V _{GS} =10V, I _D =12A		7.6	12	mΩ
		V _{GS} =4.5V, I _D =10A		11	16	mΩ
Forward transconductance	g _{FS}	V _{DS} =5V, I _D =10A		15		S
Dynamic characteristics (note 2)						
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 (note 2)						
Total gate charge	Q _g	V _{DS} =15V, V _{GS} =5V, I _D =10A		13		nC
Gate-source charge	Q _{gs}			5.5		
Gate-drain charge	Q _{gd}			3.5		
Turn-on delay time	t _{d(on)}	V _{DD} =25V, I _D =1A, V _{GS} =10V, R _G =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		
Gate Resistance	R _g	f =1MHz, V _{DS} =0V, V _{GS} =0V,	0.8		2.4	Ω
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V _{SD}	V _{GS} =0V, I _S =10A			1.2	V
Continuous drain-source diode forward current	I _S				10	A
Pulsed drain-source diode forward current	I _{SM}				40	A

Notes:

1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. Guaranteed by design, not subject to production testing.

Typical Characteristics





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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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