



Micro Commercial Components



Micro Commercial Components  
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# MCQ4410

## Features

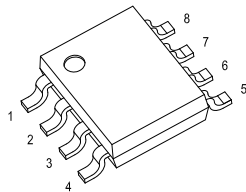
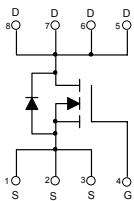
- Advanced trench MOSFET process technology
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:Q4410

## N-Channel Power MOSFET

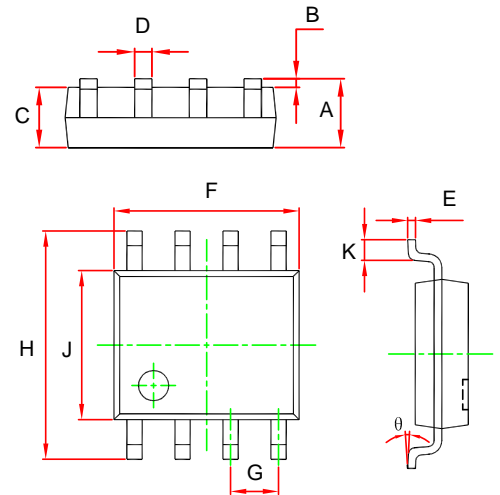
### Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-source Voltage	30	V
$I_D$	Drain Current-Continuous	7.5	A
$I_{DM}$	Pulsed Drain Current	50	A
$V_{GS}$	Gate-source Voltage	$\pm 12$	V
$E_{AS}$	Single Pulsed Avalanche Energy <sup>(1)</sup>	72	mJ
$P_D$	Power Dissipation	1.4	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	89	°C/W
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

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



## 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	
$\theta$	0°	8°	0°	8°	

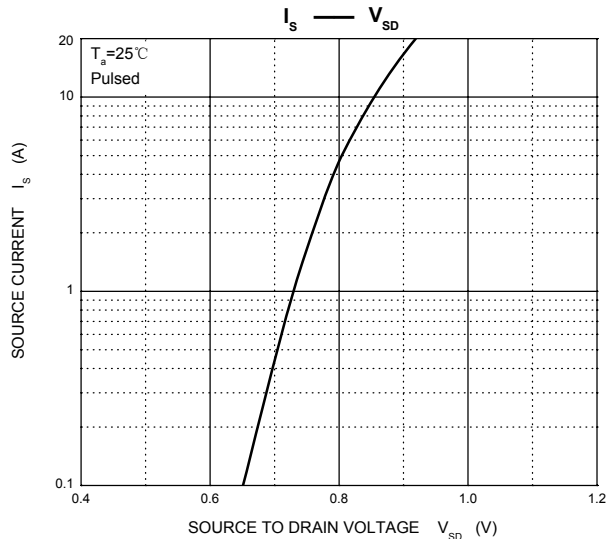
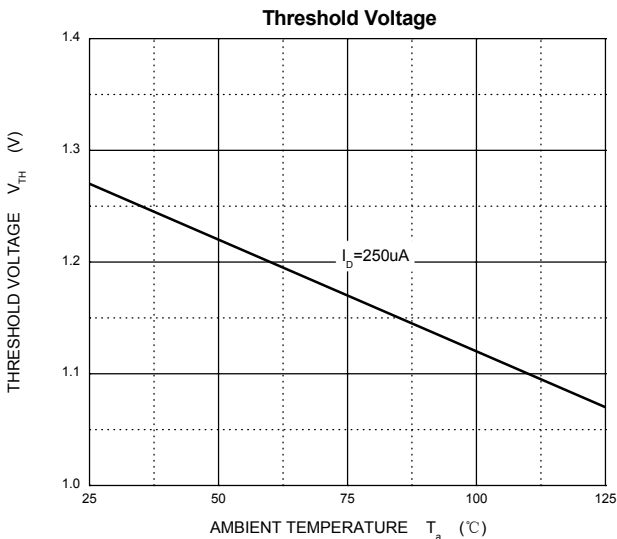
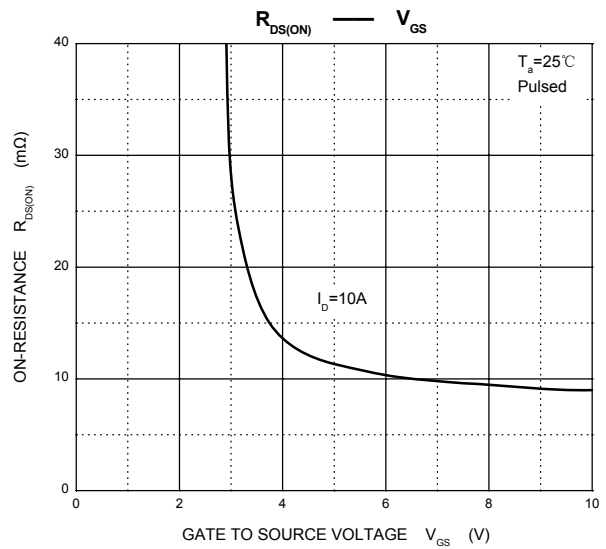
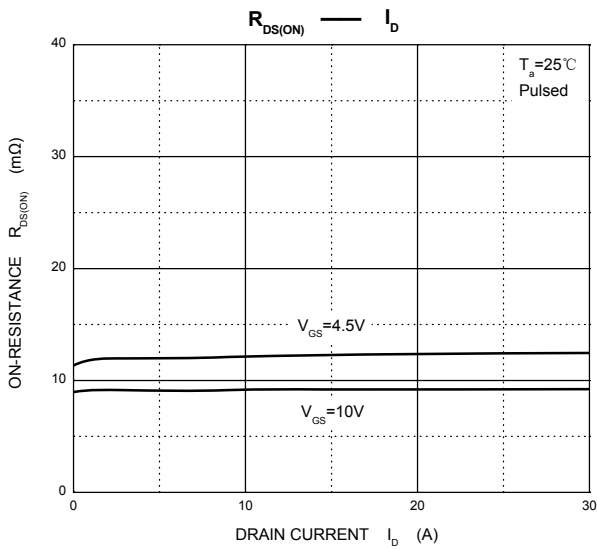
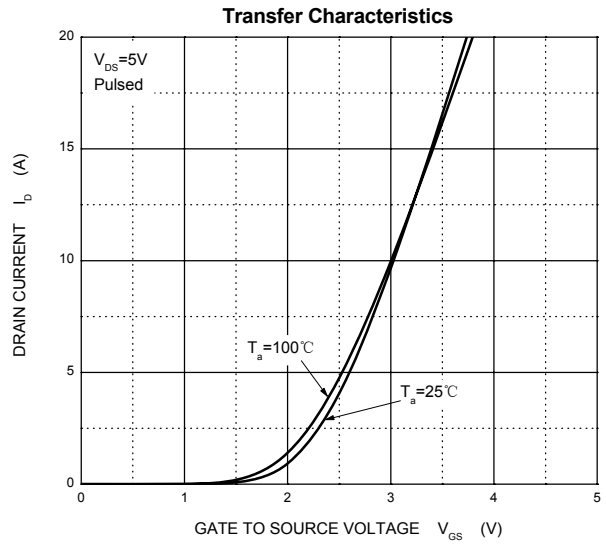
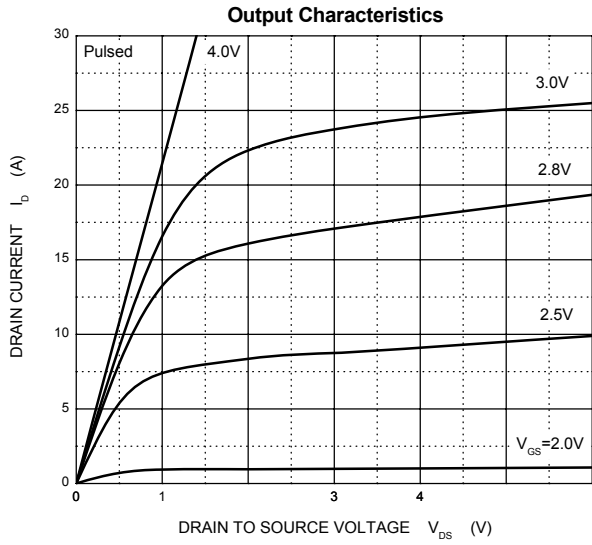
**ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
<b>On characteristics (note1)</b>						
Gate-threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	1.3	3.0	V
Static drain-source on-state resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =10A		9	13.5	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A		12	20	mΩ
Forward transconductance	g <sub>FS</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =5A		8		S
<b>Dynamic characteristics (note 2)</b>						
Input capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f =1MHz		9130		pF
Output capacitance	C <sub>OSS</sub>			625		
Reverse transfer capacitance	C <sub>RSS</sub>			387		
<b>Switching characteristics (note 2)</b>						
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =10A			40	nC
Gate-source charge	Q <sub>gs</sub>			5.5		
Gate-drain charge	Q <sub>gd</sub>			3.7		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =25V, I <sub>D</sub> =1A, V <sub>GS</sub> =10V, R <sub>G</sub> =6Ω, R <sub>L</sub> =25Ω			15	ns
Turn-on rise time	t <sub>r</sub>				15	
Turn-off delay time	t <sub>d(off)</sub>				60	
Turn-off fall time	t <sub>f</sub>				25	
Gate Resistance	R <sub>g</sub>	f =1MHz, V <sub>DS</sub> =0V, V <sub>GS</sub> =0V,	0.2		0.8	Ω
<b>Drain-Source Diode Characteristics</b>						
Drain-source diode forward voltage(note1)	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =2.3A			1.1	V
Continuous drain-source diode forward current	I <sub>S</sub>				7.5	A
Pulsed drain-source diode forward current	I <sub>SM</sub>				50	A

Notes:

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

## 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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- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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