



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Micro Commercial Components



Micro Commercial Components
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MCQ4438

Features

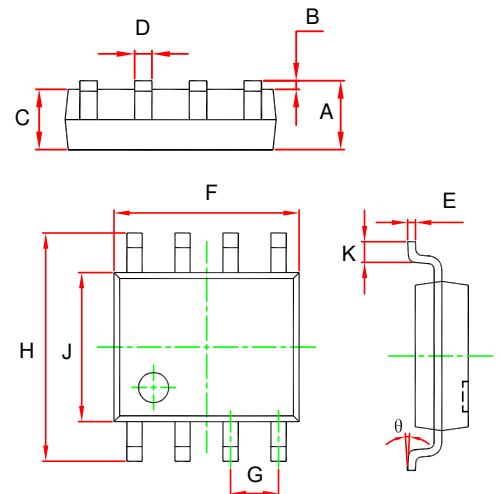
- TrenchFET Power MOSFET
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:Q4438

N-Channel Power MOSFET

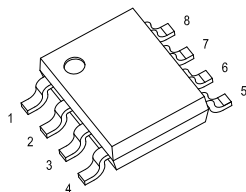
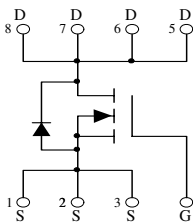
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	60	V
I_D	Drain Current-Continuous(note1)	8.2	A
I_{DM}	Pulsed Drain Current(note2)	40	A
V_{GS}	Gate-source Voltage	± 20	V
P_D	Power Dissipation	1.25	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient(note1)	100	$^{\circ}C/W$
T_J	Operating Junction Temperature	-55 to +150	$^{\circ}C$
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}C$

SOP-8



Equivalent Circuit



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 specified)

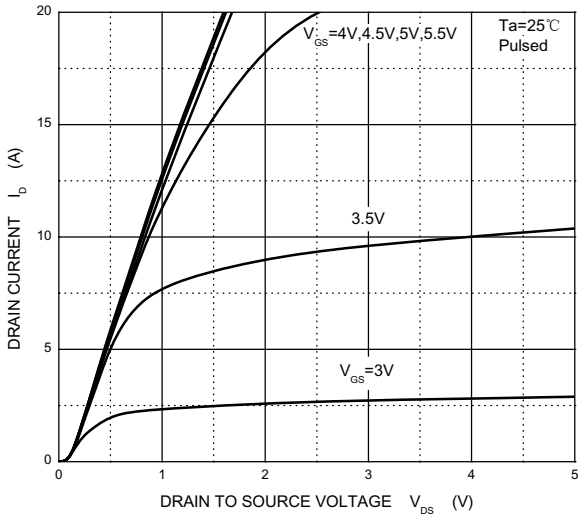
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1		3	V
Drain-source on-resistance (note 3)	R _{DS(on)}	V _{GS} =10V, I _D =8.2A			22	mΩ
		V _{GS} =4.5V, I _D =7.6A			36	mΩ
Forward tranconductance (note 3)	g _{fs}	V _{DS} =5V, I _D =8.2A	10			S
Diode forward voltage (note 3)	V _{SD}	I _S =1A, V _{GS} = 0V			1	V
DYNAMIC PARAMETERS (note 4)						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f =1MHz			2300	pF
Output Capacitance	C _{oss}			155		pF
Reverse Transfer Capacitance	C _{rss}			116		pF
SWITCHING PARAMETERS (note 4)						
Turn-on delay time	t _{d(on)}	V _{GS} =10V, V _{DS} =30V R _L =3.6Ω, R _{GEN} =3Ω		8.2		ns
Turn-on rise time	t _r			5.5		ns
Turn-off delay time	t _{d(off)}			29.7		ns
Turn-off fall time	t _f			5.2		ns
Total Gate Charge (10V)	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =8.2A			58	nC
Total Gate Charge (4.5V)					30	nC
Gate-Source Charge	Q _{gs}			6		nC
Gate-Drain Charge	Q _{gd}			14.4		nC

Notes :

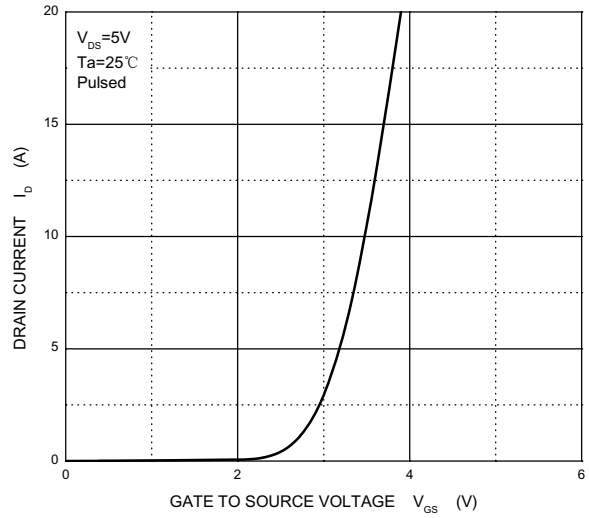
1. The value of R_{θJA} is measured with the device mounted on 1 in² FR4 board with 2oz. Copper, in a still air environment with T_a=25°C. The value in any given application depends on the user's specific board design. The current rating is based on the t ≤10s thermal resistance rating.
2. Repetitive rating : Pulse width limited by junction temperature.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.
4. These parameters have no way to verify.

Typical Characteristics

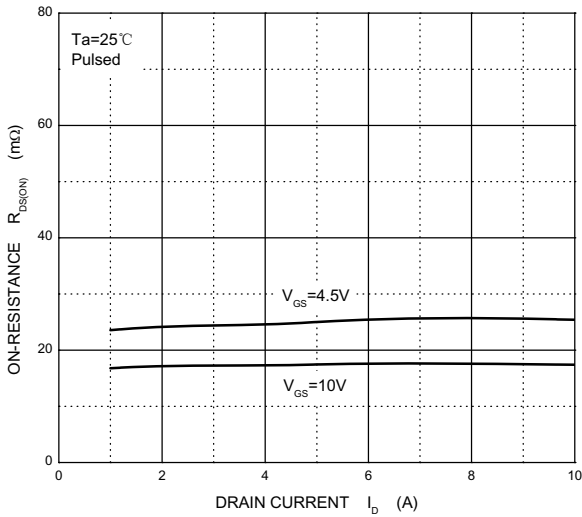
Output Characteristics



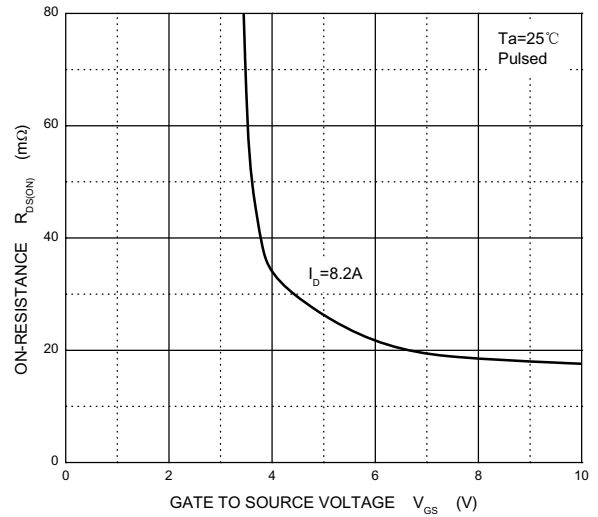
Transfer Characteristics



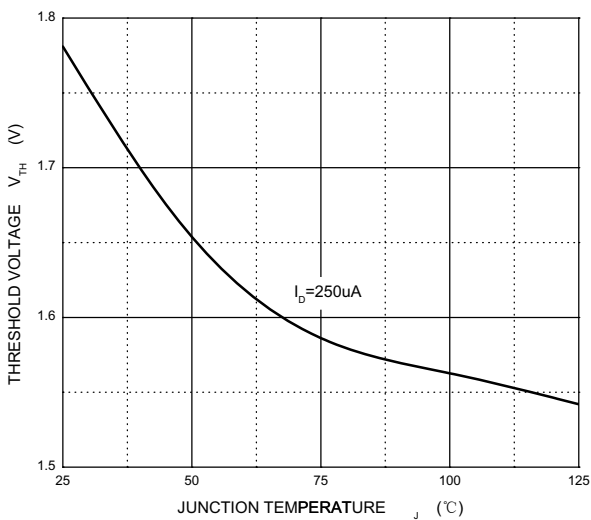
$R_{DS(ON)}$ — I_D



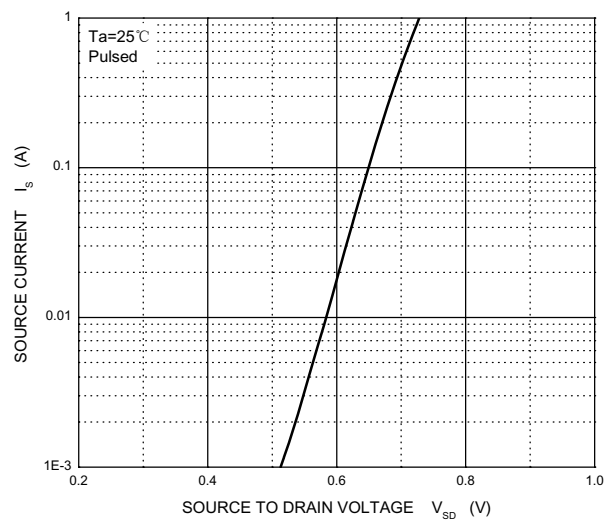
$R_{DS(ON)}$ — V_{GS}



Threshold Voltage



I_S — V_{SD}





Micro Commercial Components

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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