



Micro Commercial Components



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MCQ4435

Features

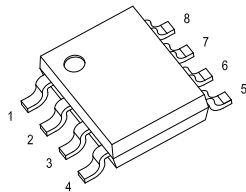
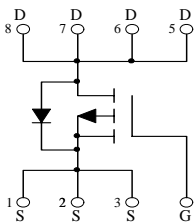
- Advanced trench MOSFET process technology
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:Q4435

Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-30	V
I_D	Drain Current-Continuous	-9.1	A
I_{DM}	Pulsed Drain Current	-36	A
V_{GS}	Gate-source Voltage	± 20	V
E_{AS}	Single Pulsed Avalanche Energy ⁽¹⁾	20	mJ
P_D	Power Dissipation	1.4	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	89	$^{\circ}C/W$
T_J	Operating Junction Temperature	-55 to +150	$^{\circ}C$
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}C$

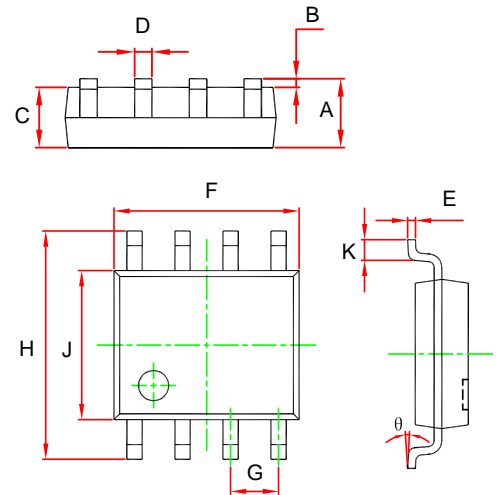
(1). E_{AS} condition: $V_{DD}=-50V, L=0.5mH, R_G=25\Omega$, Starting $T_J = 25^{\circ}C$

Equivalent Circuit



P-Channel Power MOSFET

SOP-8



DIM	INCHES		MM		NOTE
	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°	8°	0°	8°	

ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise specified)

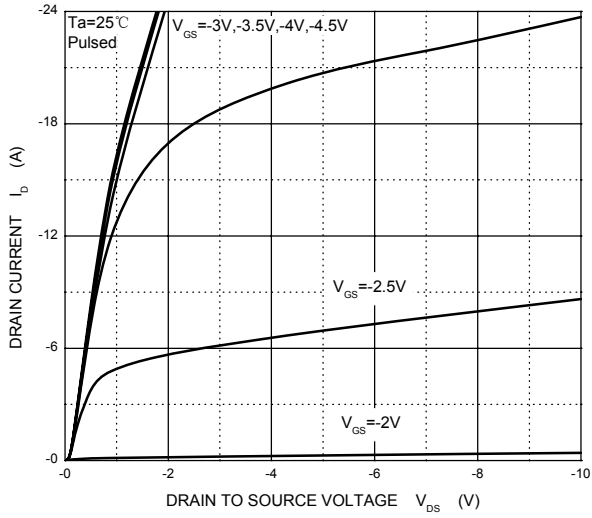
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	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 = -9.1A		14	24	mΩ
		V _{GS} = -4.5V, I _D = -6.9A		23	35	mΩ
Forward transconductance	g _{FS}	V _{DS} = -10V, I _D = -9.1A	20			S
Dynamic characteristics (note 2)						
Input capacitance	C _{ISS}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz		1350		pF
Output capacitance	C _{OSS}			215		
Reverse transfer capacitance	C _{RSS}			185		
Switching characteristics (note 2)						
Total gate charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -9.1A			50	nC
		V _{DS} = -15V, V _{GS} = -4.5V, I _D = -9.1A			25	
Gate-source charge	Q _{gs}			4		
Gate-drain charge	Q _{gd}			7.5		
Turn-on delay time	t _{d(on)}	V _{DD} = -15V, I _D = -1A, V _{GS} = -10V, R _G = 1Ω, R _L = 15Ω			15	ns
Turn-on rise time	t _r				15	
Turn-off delay time	t _{d(off)}				70	
Turn-off fall time	t _f				25	
Gate Resistance	R _g	f = 1MHz, V _{DS} = 0V, V _{GS} = 0V,		5.8		Ω
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V _{SD}	V _{GS} = 0V, I _S = -2A			-1.2	V
Continuous drain-source diode forward current	I _S				-9.1	A
Pulsed drain-source diode forward current	I _{SM}				-36	A

Notes:

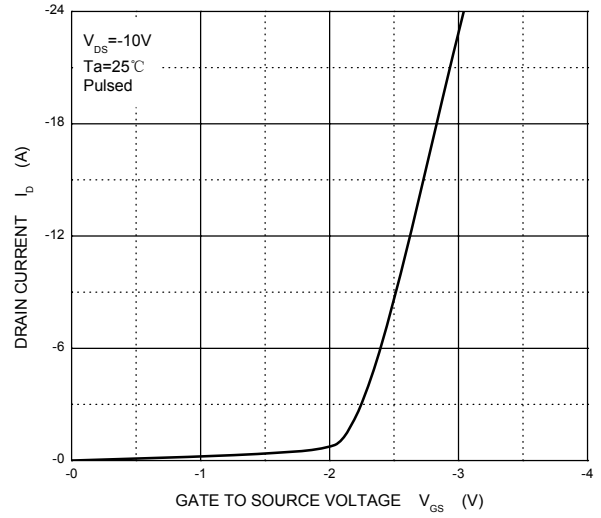
1. Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.

Typical Characteristics

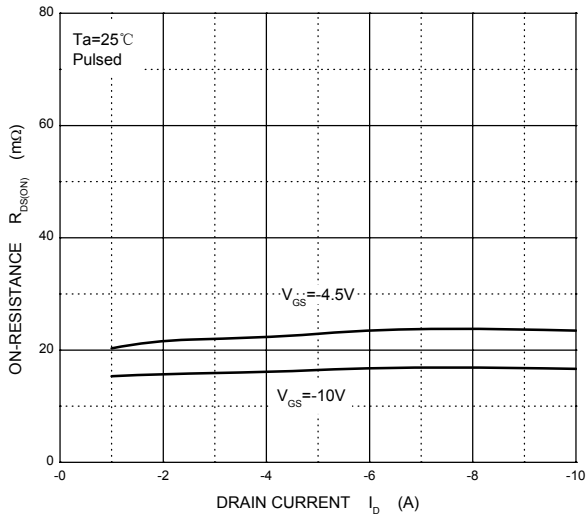
Output Characteristics



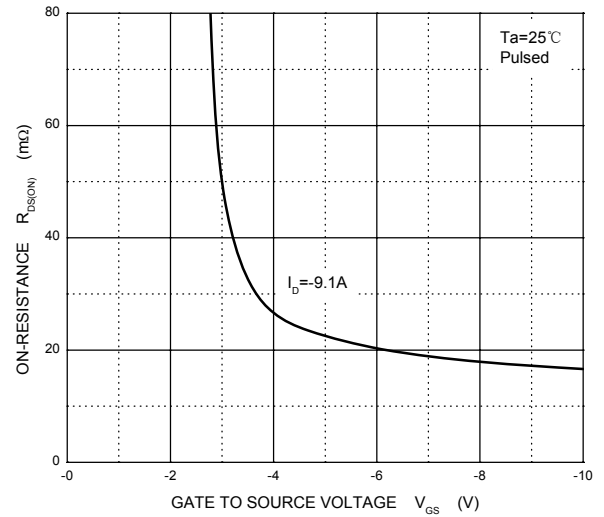
Transfer Characteristics



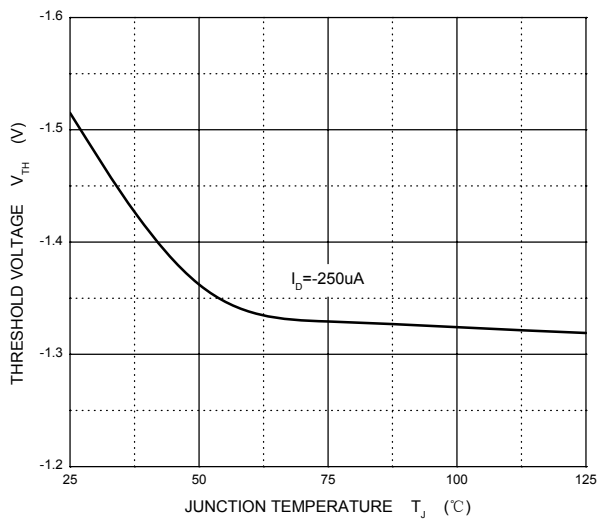
$R_{DS(ON)}$ — I_b



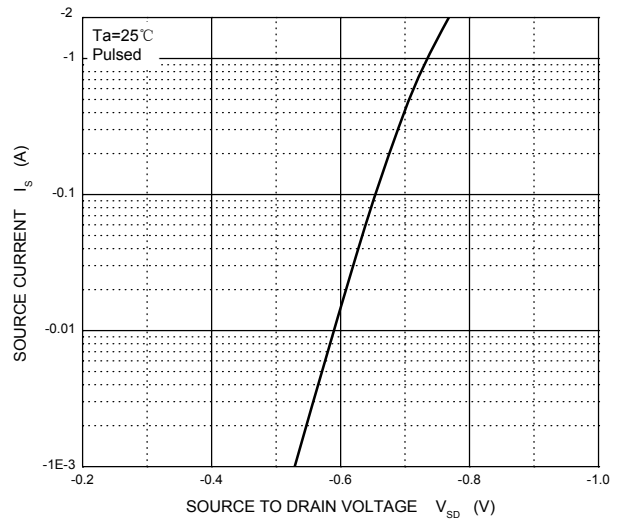
$R_{DS(ON)}$ — V_{GS}



Threshold Voltage



I_s — V_{SD}





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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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