Micro Commercial Components

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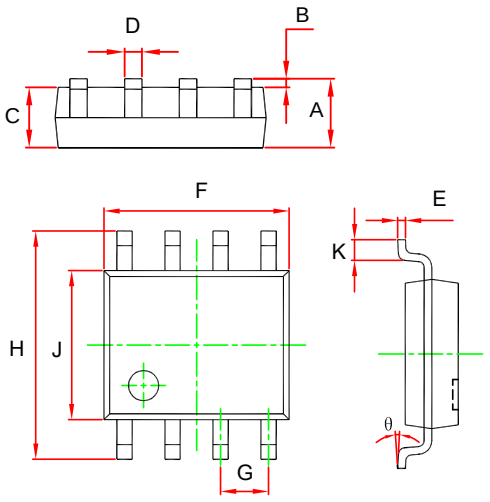
MCQ9435

P-Channel Power MOSFET

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:Q9435

SOP-8



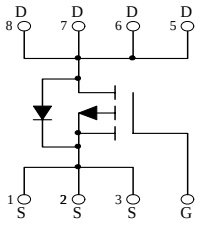
DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.350	1.750	
B	0.004	0.010	0.100	0.250	
C	0.053	0.061	1.350	1.550	
D	0.013	0.020	0.330	0.510	
E	0.007	0.010	0.170	0.250	
F	0.189	0.197	4.800	5.000	
G	0.050 (BSC)		1.270 (BSC)		
H	0.228	0.244	5.800	6.200	
J	0.150	0.157	3.800	4.000	
K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

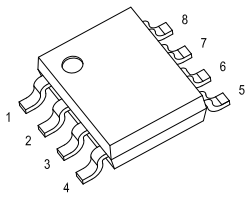
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-30	V
I_D	Drain Current-Continuous	-5.1	A
I_{DM}	Pulsed Drain Current	-20	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	℃/W
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃

(1).E_{AS} condition: V_{DD}=-50V,L=0.5mH, R_G=25Ω, Starting T_J = 25°C

Equivalent Circuit





ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise specified)

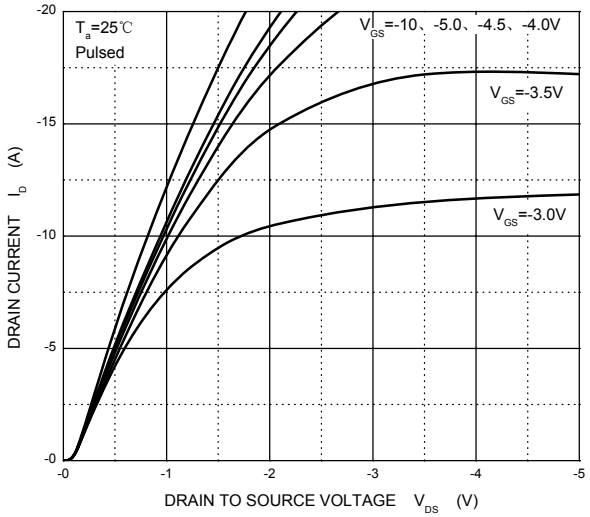
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-24V, V_{GS} =0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
On characteristics (note1)						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.5	-2.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4.6A		50	60	mΩ
		V_{GS} =-6V, I_D =-4.1A		60	70	mΩ
		V_{GS} =-4.5V, I_D =-2A		65	105	mΩ
Forward transconductance	g_{FS}	V_{DS} =-15V, I_D =-4.6A	5			S
Switching characteristics (note 2)						
Total gate charge	Q_g	V_{DS}=-15V, V_{GS}=-10V, I_D=-4.6A			40	nC
Gate-source charge	Q_{gs}			4		
Gate-drain charge	Q_{gd}			6.3		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V,I_D=-1A, V_{GS}=-10V,R_G=6Ω, R_L=15Ω			30	ns
Turn-on rise time	t_r				60	
Turn-off delay time	$t_{d(off)}$				120	
Turn-off fall time	t_f				100	
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=-2.6A			-1.2	V
Continuous drain-source diode forward current	I_S				-5.1	A
Pulsed drain-source diode forward current	I_{SM}				-20	A

Notes:

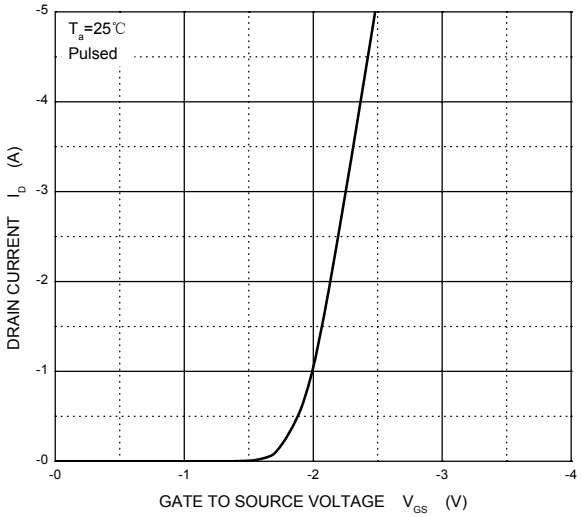
1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. Guaranteed by design, not subject to production testing.

Typical Characteristics

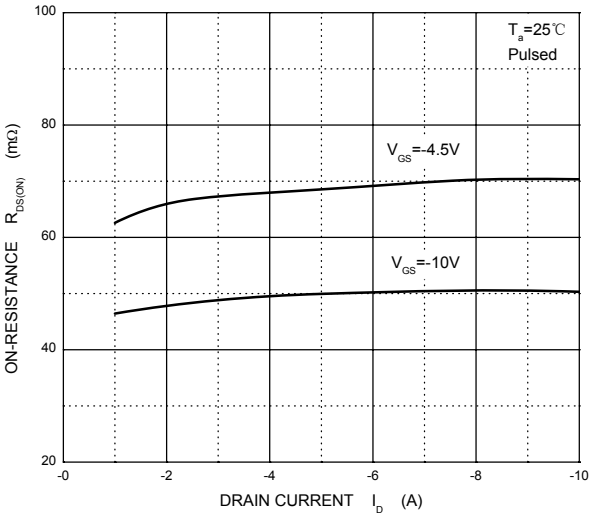
Output Characteristics



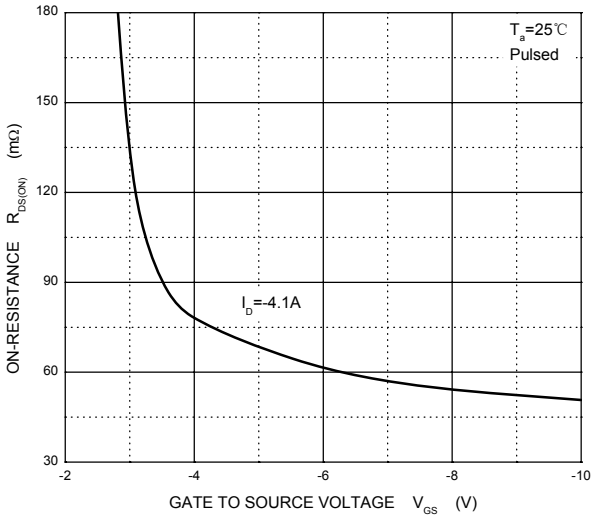
Transfer Characteristics



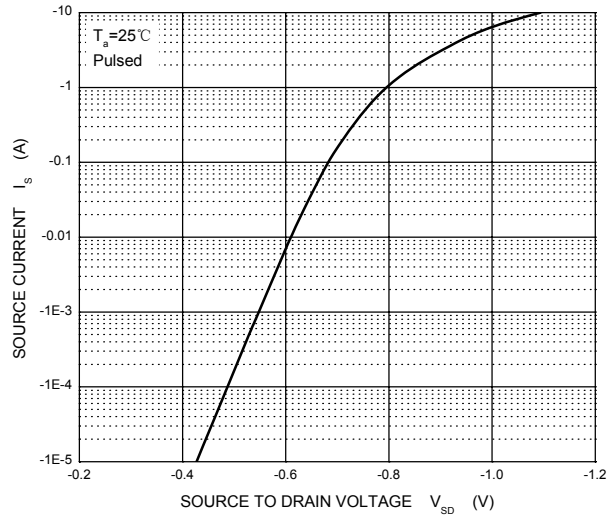
$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$ —— V_{GS}



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