



Micro Commercial Components



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MCQ9435

P-Channel Power MOSFET

Features

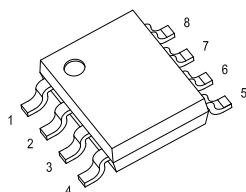
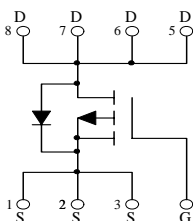
- Advanced trench MOSFET process technology
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:Q9435

Maximum Ratings @ 25°C Unless Otherwise Specified

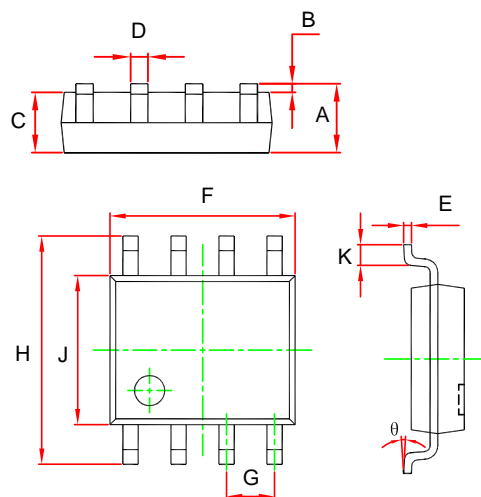
Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-30	V
I_D	Drain Current-Continuous	-5.1	A
I_{DM}	Pulsed Drain Current	-20	A
V_{GS}	Gate-source Voltage	± 20	V
E_{AS}	Single Pulsed Avalanche Energy ⁽¹⁾	20	mJ
P_D	Power Dissipation	1.4	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	89	°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 $T_J = 25^\circ C$

Equivalent Circuit



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°	

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

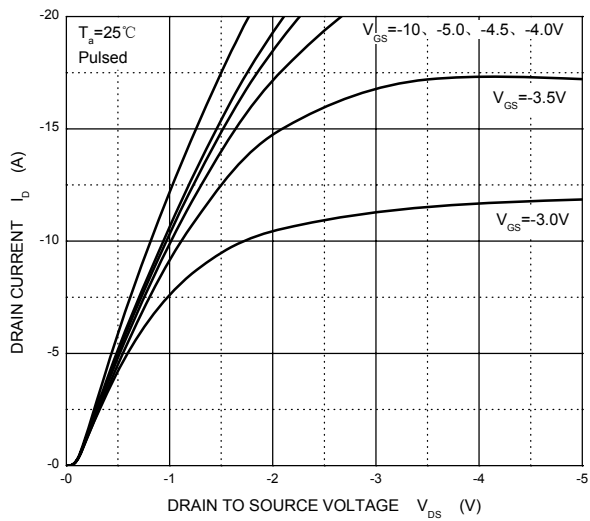
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -24V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	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-state 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:

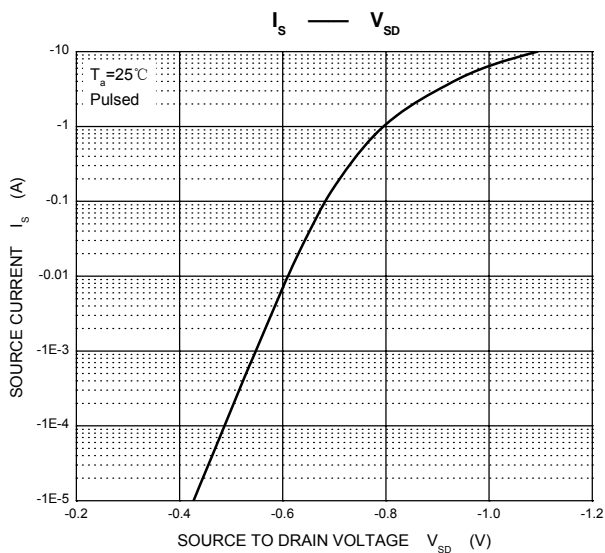
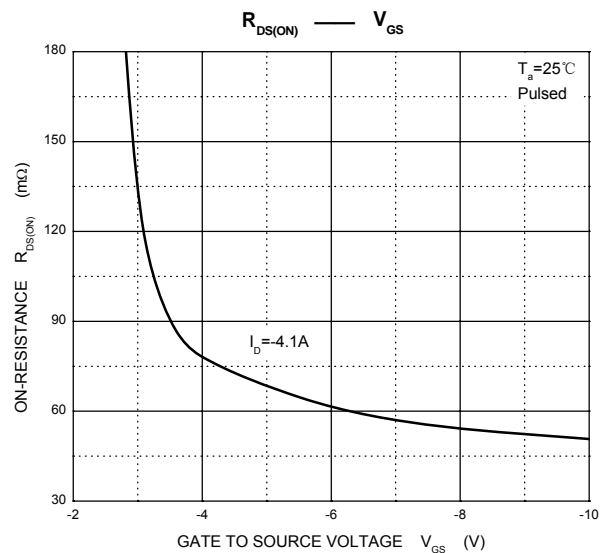
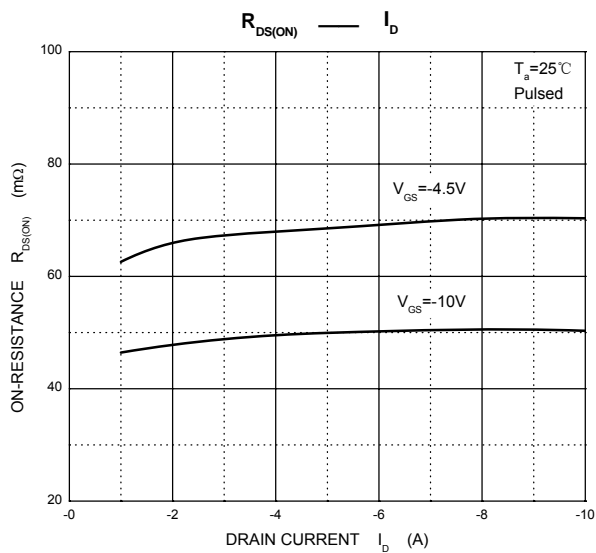
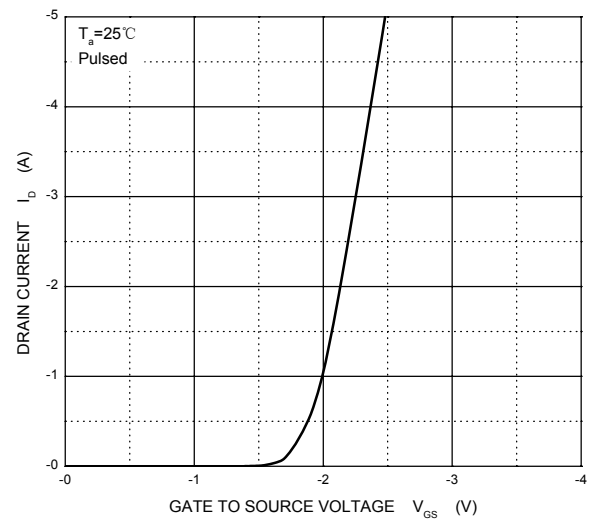
1. Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.

Typical Characteristics

Output Characteristics



Transfer Characteristics





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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