



DESCRIPTION

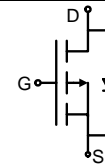
The FTK4435 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge .It has been optimized for power management applications requiring a wide range of gate drive voltage ratings (4.5V – 25V).

GENERAL FEATURES

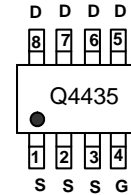
- $V_{DS} = -30V, I_D = -9.1A$
 $R_{DS(ON)} < 35m\Omega @ V_{GS} = -4.5V$
 $R_{DS(ON)} < 24m\Omega @ V_{GS} = -10V$
- High Power and current handling capability
- Lead free product is acquired
- Surface Mount Package

Application

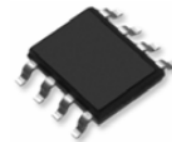
- Battery protection
- Load switch
- Power management



Schematic diagram



Marking and pin Assignment



SOP-8 top view

PACKAGE MARKING AND ORDERING INFORMATION

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
Q4435	FTK4435	SOP-8	Ø330mm	12mm	2500 units

ABSOLUTE MAXIMUM RATINGS(TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current (t =10s) (note 1)	I_D	-9.1	A
Pulsed Drain Current	I_{DM}	-50	
Drain-Source Diode Forward Current (t =10s) (note 1)	I_S	-2	
Power Dissipation (t =10s)	P_D	1.4	W
Thermal Resistance from Junction to Ambient (t ≤10s) (note 1)	$R_{\theta JA}$	89	°C/W
Junction Temperature	T_J	-55 ~+150	°C
Storage Temperature	T_{stg}	-55 ~+150	



FTK4435

Electrical characteristics ($T_a=25^\circ\text{C}$ unless otherwise noted)

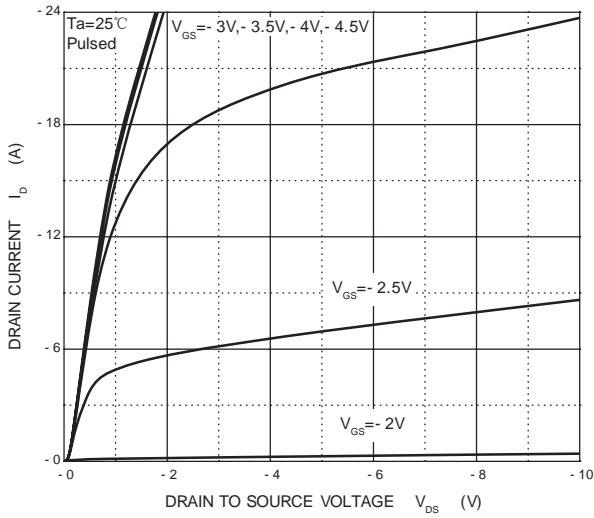
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$			-1	μA
Gate body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1		-3	V
Drain-Source on-state Resistance (note 2)	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-9.1A$			24	m Ω
		$V_{GS}=-4.5V, I_D=-6.9A$			35	
Forward Transconductance (note 2)	g_{FS}	$V_{DS}=-10V, I_D=-9.1A$	20			S
Dynamic Characteristics (note 3)						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$		1350		pF
Output Capacitance	C_{oss}			215		
Reverse Transfer Capacitance	C_{riss}			185		
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}	$V_{DS}=-15V, V_{GS}=-4.5V, I_D=-9.1A$		4		
Gate-Drain Charge	Q_{gd}			7.5		
Gate Resistance	R_g	$f=1MHz$		5.8		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-15V, R_L=15\Omega$ $I_D=-1A, V_{GEN}=-10V, R_G=1\Omega$			15	ns
Rise Time	t_r				15	
Turn-Off Delay Time	$t_{d(off)}$				70	
Fall Time	t_f				25	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	$I_S=-2A, V_{GS}=0V$			-1.2	V

Notes:

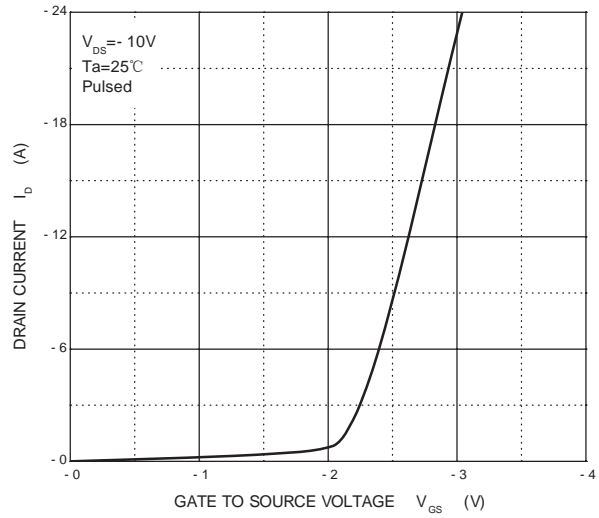
1. Surface mounted on 1"x1" FR4 board.
2. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
3. Guaranteed by design, not subject to production testing.

Typical Characteristics

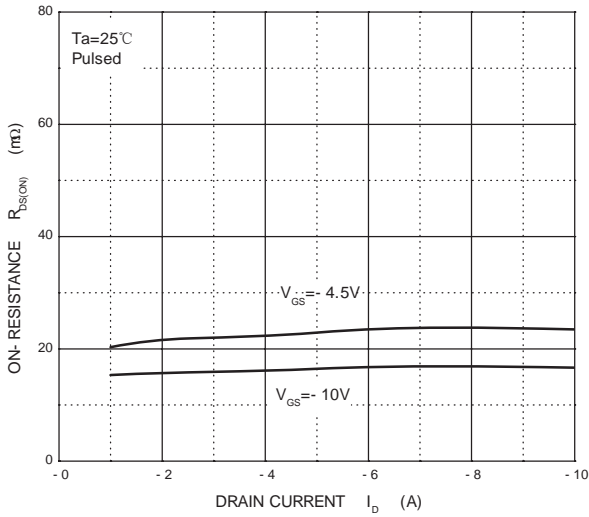
Output Characteristics



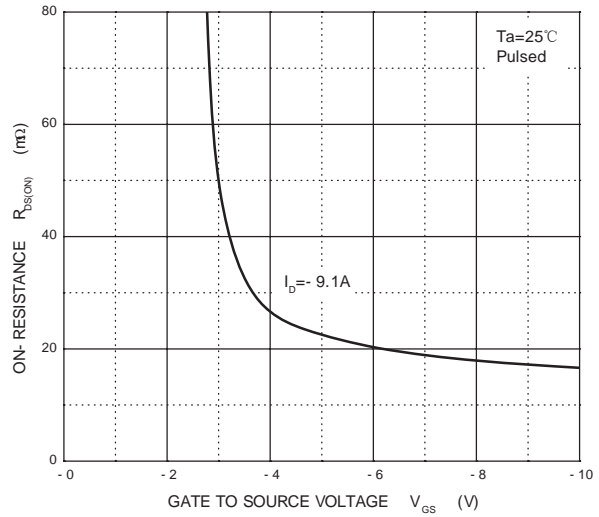
Transfer Characteristics



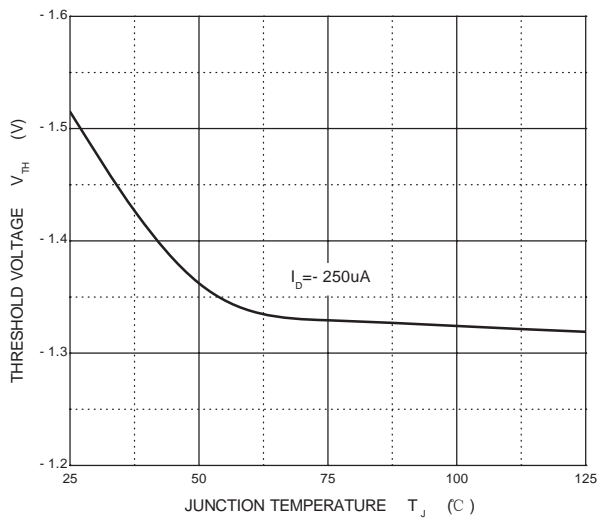
$R_{DS(ON)}$ — I_D



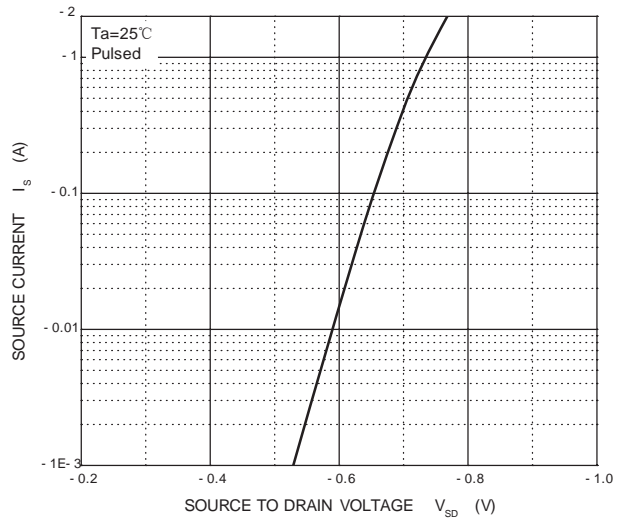
$R_{DS(ON)}$ — V_{GS}



Threshold Voltage

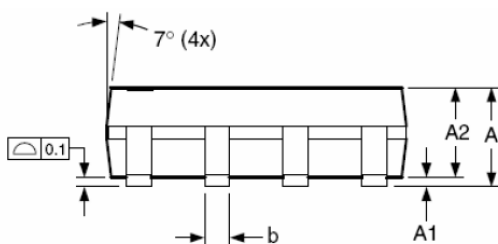
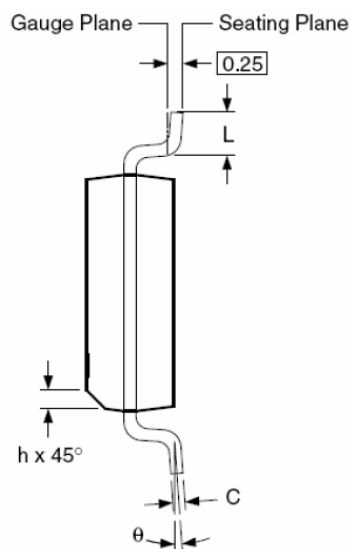
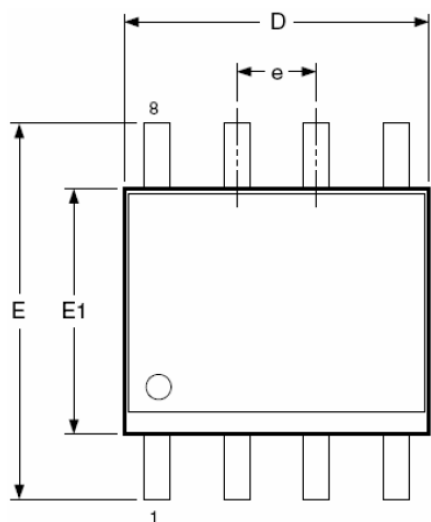


I_S — V_{SD}

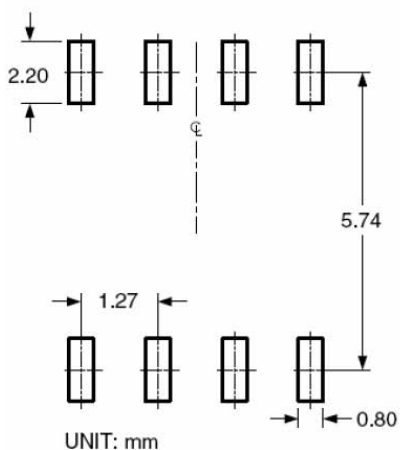


SOP-8 PACKAGE INFORMATION

Dimensions in Millimeters (UNIT:mm)



RECOMMENDED LAND PATTERN



Dimensions in millimeters

Symbols	Min.	Nom.	Max.
A	1.35	1.65	1.75
A1	0.10	—	0.25
A2	1.25	1.50	1.65
b	0.31	—	0.51
c	0.17	—	0.25
D	4.80	4.90	5.00
E1	3.80	3.90	4.00
e	1.27 BSC		
E	5.80	6.00	6.20
h	0.25	—	0.50
L	0.40	—	1.27
θ	0°	—	8°

Dimensions in inches

Symbols	Min.	Nom.	Max.
A	0.053	0.065	0.069
A1	0.004	—	0.010
A2	0.049	0.059	0.065
b	0.012	—	0.020
c	0.007	—	0.010
D	0.189	0.193	0.197
E1	0.150	0.154	0.157
e	0.050 BSC		
E	0.228	0.236	0.244
h	0.010	—	0.020
L	0.016	—	0.050
θ	0°	—	8°

NOTES:

1. All dimensions are in millimeters.
2. Dimensions are inclusive of plating
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 6 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.