AT4435B

P-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	20mΩ@-10V	-9.3A
	30mΩ@-4.5V	

Feature

- Advanced trench technology
- Excellent $R_{DS(ON)}$
- Low gate charge

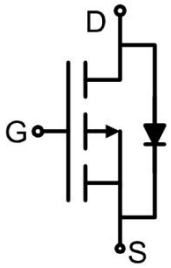
Application

- Lithium battery protection
- Wireless impact
- Mobile phone fast charging

Package

SOP-8

Circuit diagram



Marking

AT4435B

P-Channel Enhancement Mode MOSFET

Absolute maximum ratings (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1] (V_{GS}=-10V,T_A=25℃)	I_D	-9.3	A
Continuous Drain Current[1] (V_{GS}=-10V,T_A=70℃)	I_D(70℃)	-7.0	A
Pulsed Drain Current[2]	I_{DM}	-50	A
Power Dissipation[3] (T_A=25℃)	P_D	3.1	W
Thermal Resistance from Junction to Ambient[1](t≤10s)	$R_{\theta JA}$	33.8	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=25 °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 =-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_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.2	-1.5	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-10A		16	20	mΩ
		V_{GS} =-4.5V, I_D =-5A		25	30	
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		1550		pF
Output Capacitance	C_{oss}			327		
Reverse Transfer Capacitance	C_{rss}			278		
Total Gate Charge	Q_g	V_{DS} =-15V,V_{GS} =-10V, I_D =-9.1A		30		nC
Gate-Source Charge	Q_{gs}			5.3		
Gate-Drain Charge	Q_{gd}			7.6		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V,V_{GS}=-10V, I_D =-6A R_{GEN}=2.5Ω		14		nS
Turn-on rise time	t_r			20		
Turn-off delay time	$t_{d(off)}$			95		
Turn-off fall time	t_f			65		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				-9.3	A
Pulsed Diode Forward Current	I_{SM}				-40	A
Diode Forward voltage[1]	V_{DS}	V_{GS} =0V, I_S=-9.3A			-1.2	V

Notes:

1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

2) The data tested by pulsed , pulse width ≤300us , duty cycle ≤2%.

3) The power dissipation is limited by 150℃ junction temperature

4) Guaranteed by design, not subject to production testing.

Typical Characteristics

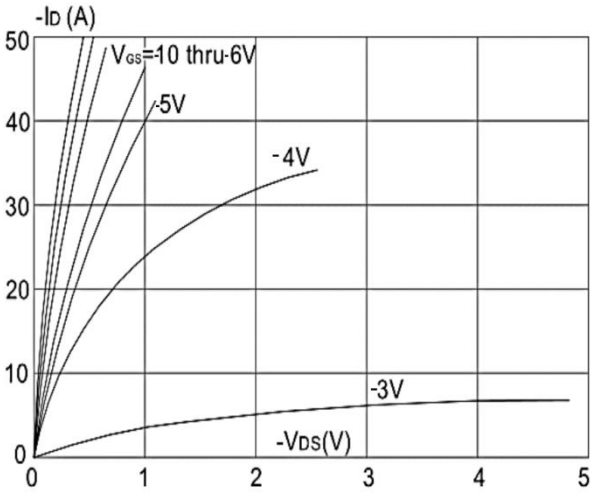


Figure1: Output Characteristics

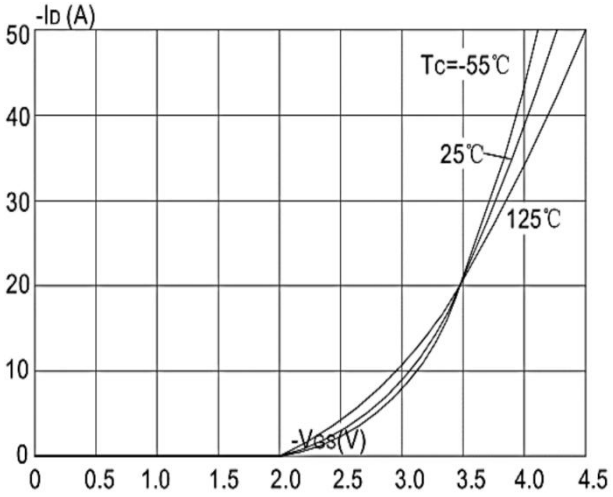


Figure 2: Typical Transfer Characteristics

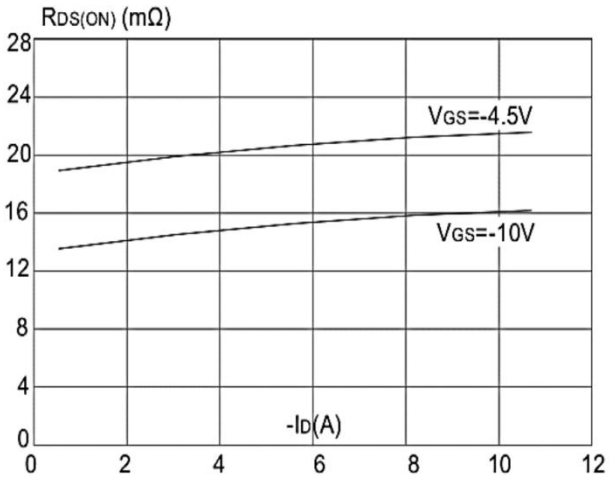


Figure 3:On-resistance vs. Drain Current

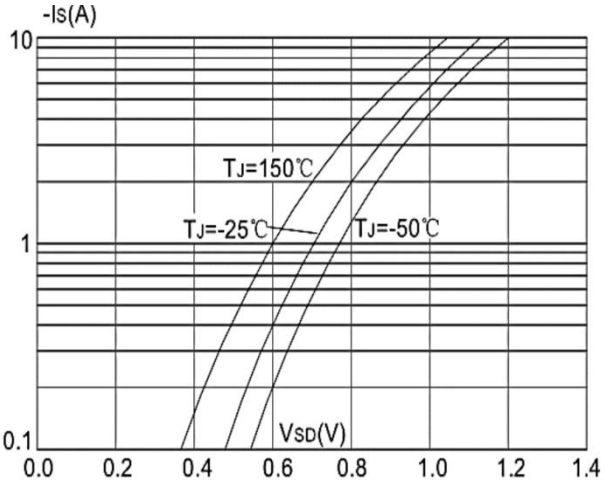


Figure 4: Body Diode Characteristics

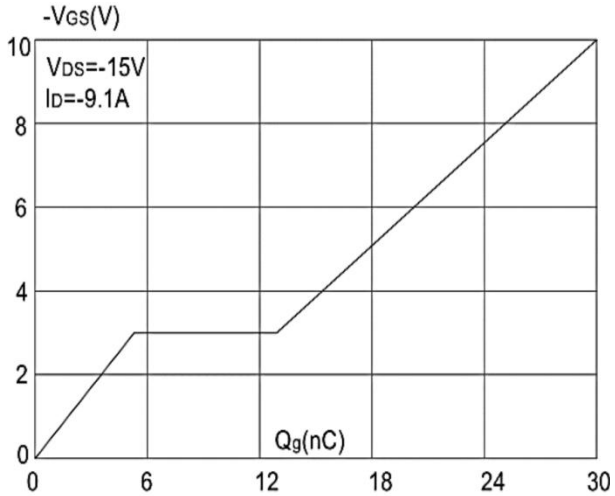


Figure 5: Gate Charge Characteristics

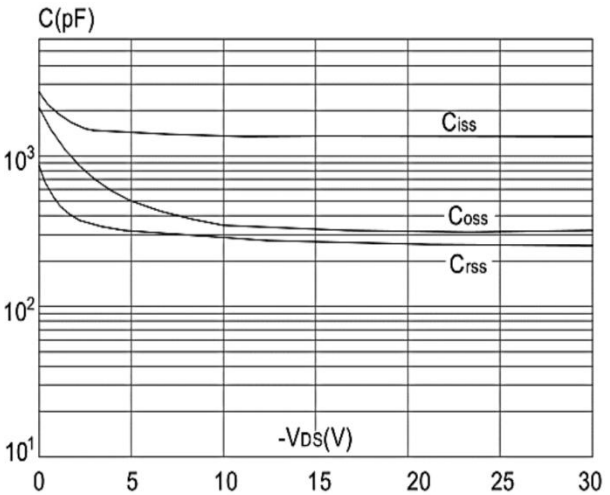


Figure 6: Capacitance Characteristics

Typical Characteristics

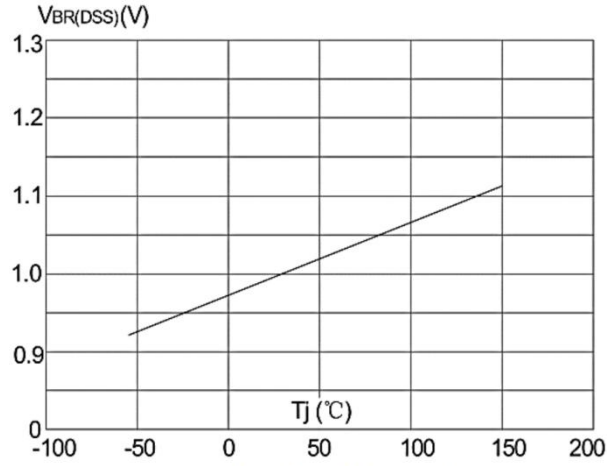


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

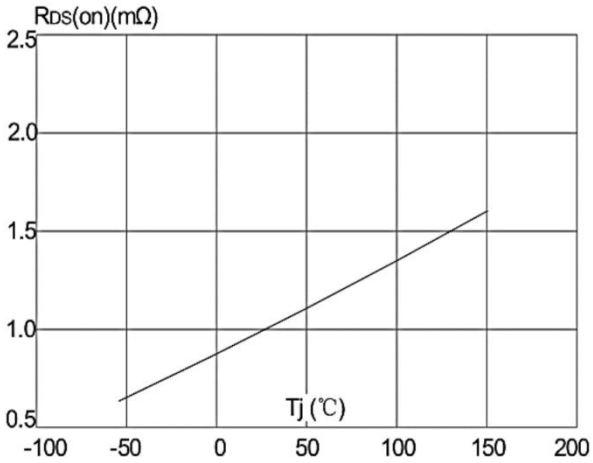


Figure 8: Normalized on Resistance vs. Junction Temperature

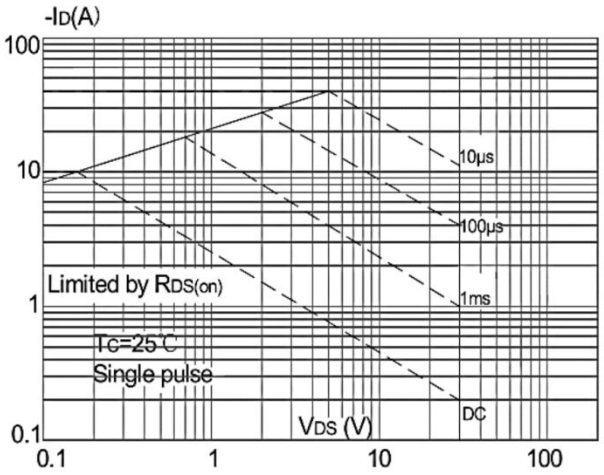


Figure 9: Maximum Safe Operating Area

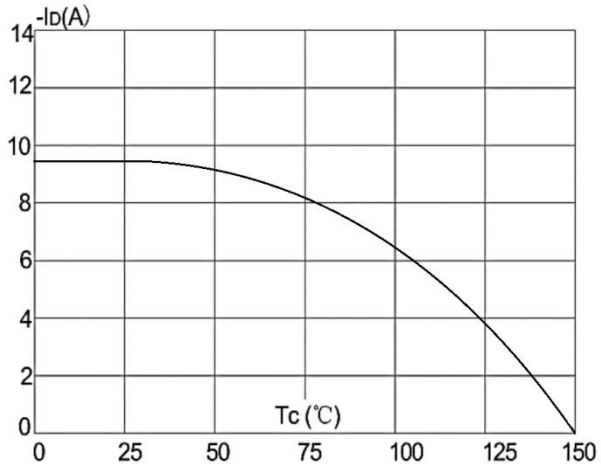


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

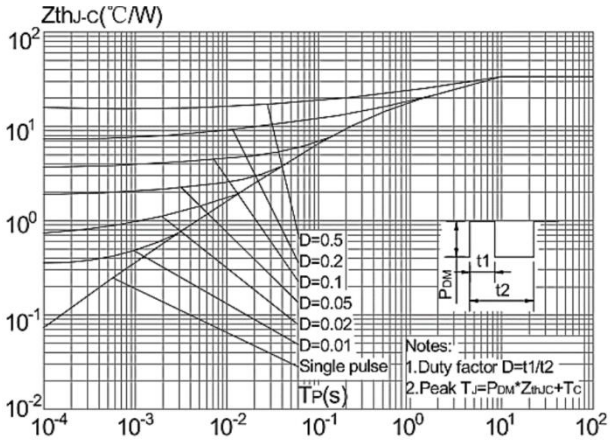
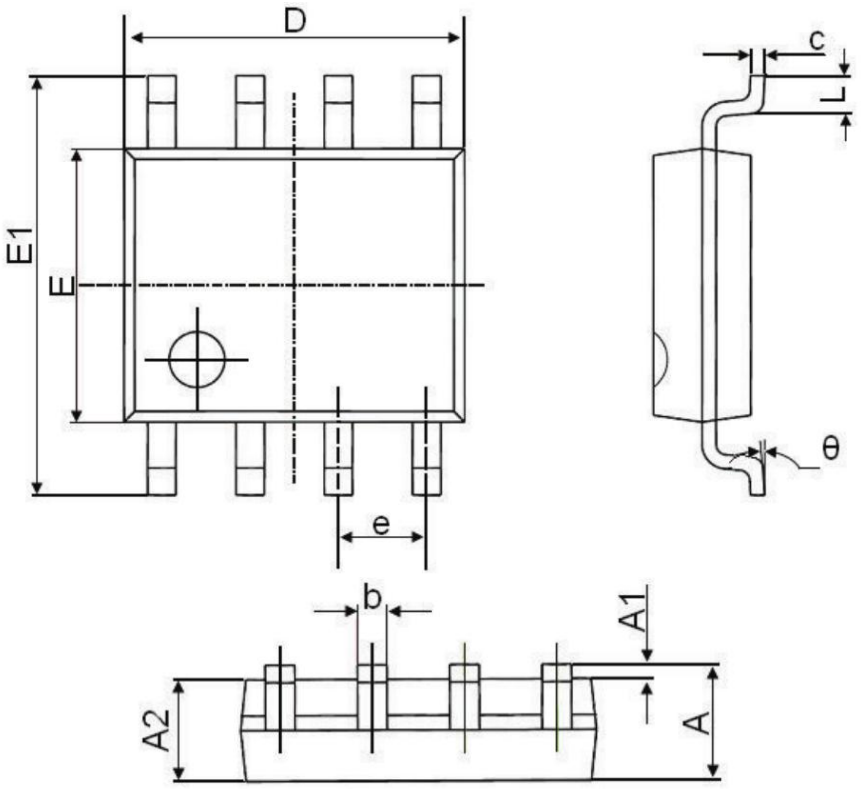


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°