★ Green Device Available
★ Super Low Gate Charge
★ Excellent CdV/dt effect decline
★ Advanced high cell density Trench technology

Product Summary

RoHS

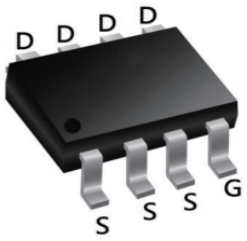
BVDSS	RDSON	ID
-30V	15mΩ	-10A

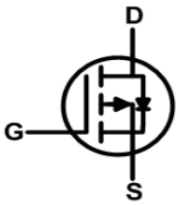
Description

The 4435B is the high cell density trenched P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The 4435B meet the RoHS and Green Product requirement .

SOP8 Pin Configuration





Absolute Maximum Ratings (TA=25°C unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_A= 25℃	-10	A
		T_A = 100℃	-7	A
I_{DM}	Pulsed Drain Current note1		-36	A
E_{AS}	Single Pulsed Avalanche Energy note2		25	mJ
P_D	Power Dissipation	T_A = 25℃	3.5	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		48	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

Electrical Characteristics (T_J =25 °C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D= -250μA	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -30V, V_{GS} = 0V,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} =0V, V_{GS} = ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D= -250μA	-1	-1.5	-2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance Note3	V_{GS} =-10V, I_D =-9A	-	15	20	mΩ
		V_{GS} =-4.5V, I_D =-5A	-	20	30	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = -15V, V_{GS} = 0V,	-	900	-	pF
C_{oss}	Output Capacitance		-	125	-	pF
C_{rss}	Reverse Transfer Capacitance		-	109	-	pF
Q_g	Total Gate Charge	V_{DS}= -15V, I_D = -8A, V_{GS} = -10V	-	42	-	nC
Q_{gs}	Gate-Source Charge		-	8.8	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	7.3	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD} = -15V, I_D = -1A, V_{GS}=-10V, R_{GEN}=6Ω	-	13	-	ns
t_r	Turn-on Rise Time		-	15	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	198	-	ns
t_f	Turn-off Fall Time		-	98	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-10	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-36	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S = -9A	-	-0.8	-1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: TJ=25°C, V_{DD}=-15V, V_G=-10V, R_G=25Ω, L=0.5mH, I_{AS}=-10A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

Figure1: Output Characteristics

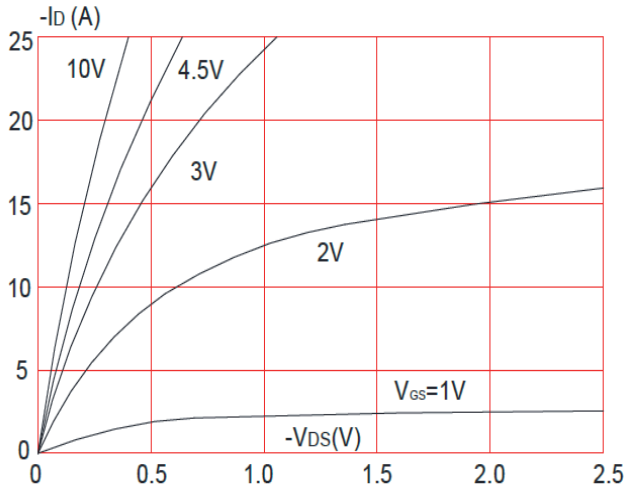


Figure 2: Transfer Characteristics

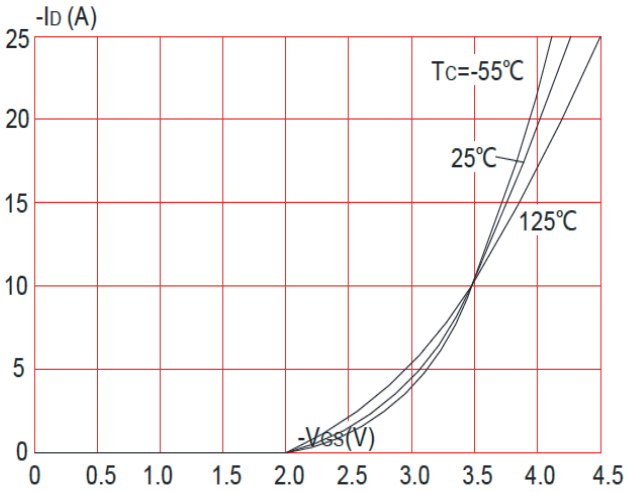


Figure 3: On-resistance vs. Drain Current

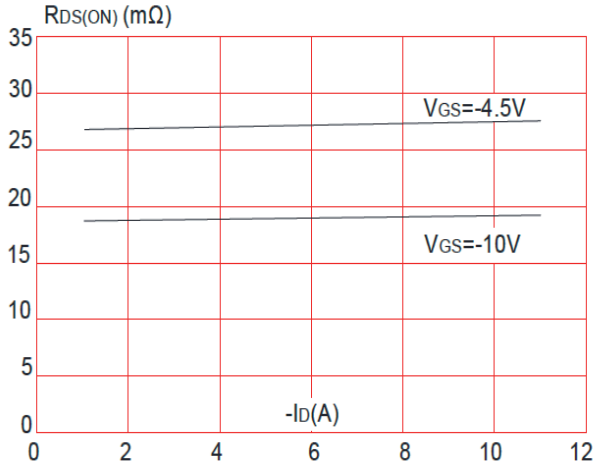


Figure 4:Body Diode Characteristics

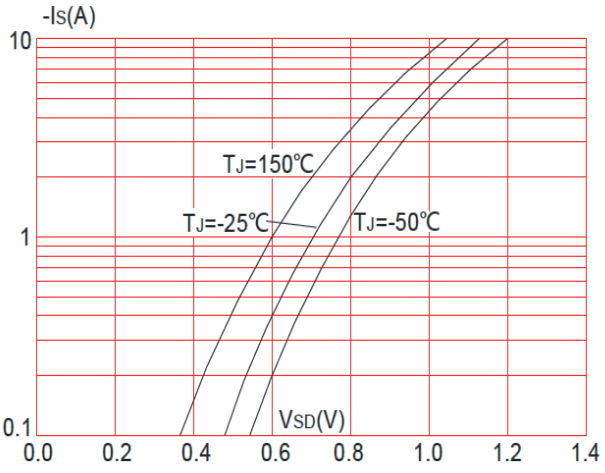


Figure 5: Gate Charge Characteristics

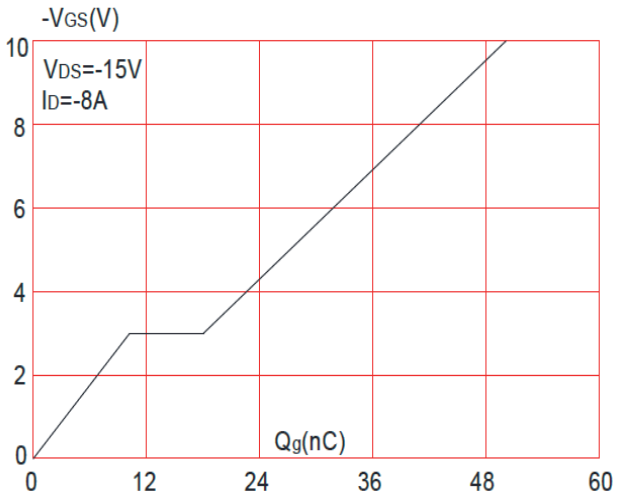
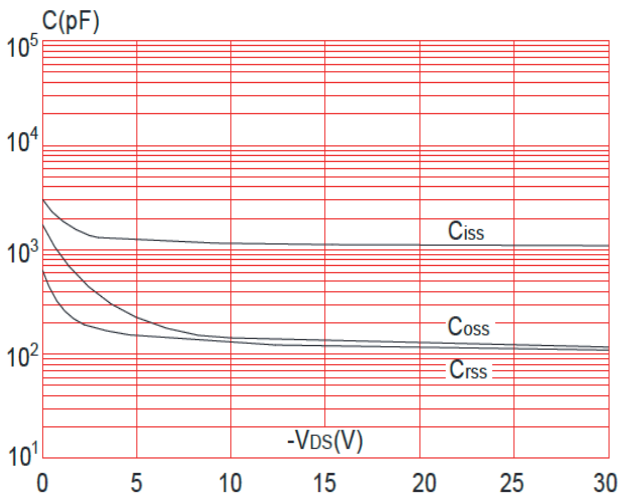


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7:Normalized Breakdown Voltage

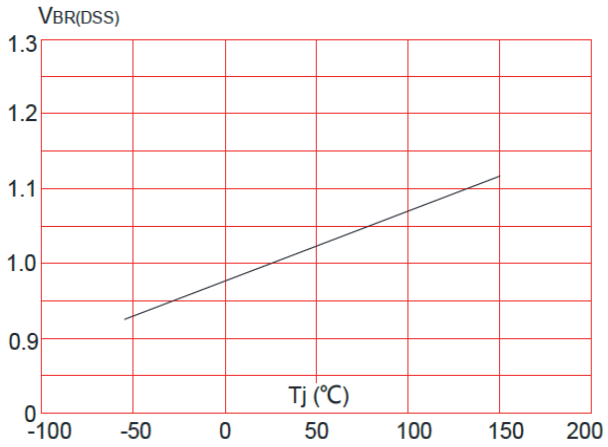


Figure 8: Normalized on Resistance vs.

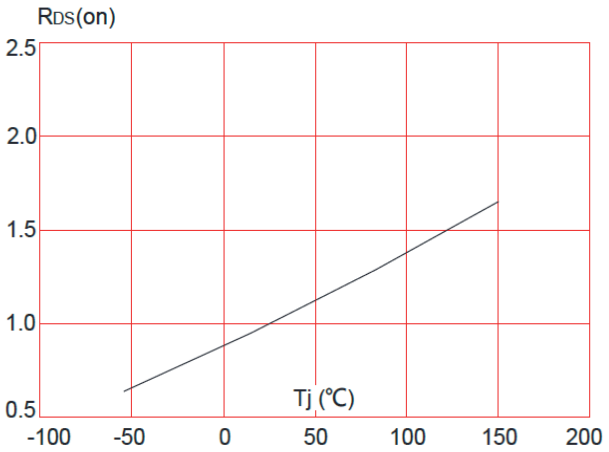


Figure 7:Maximum Safe Operating Area

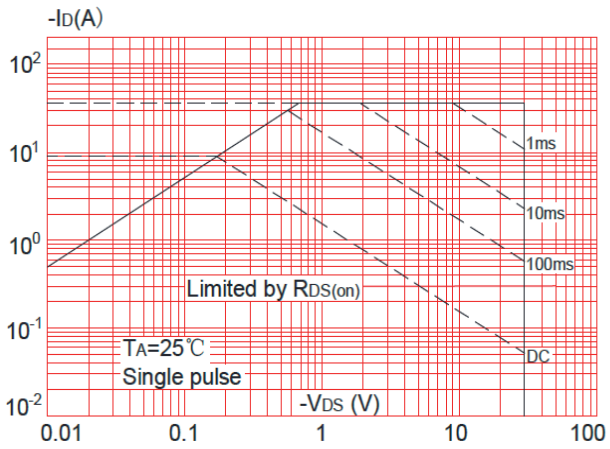


Figure 8:Maximum Continuous Drain Cur

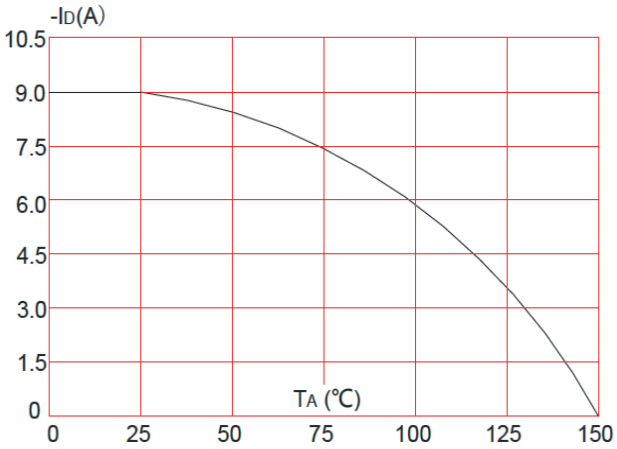
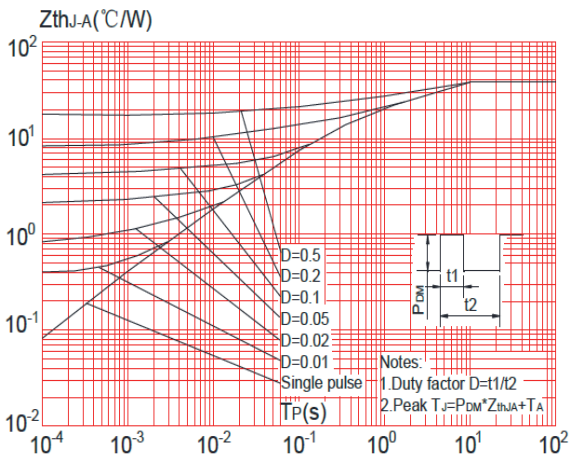


Figure 7:Maximum Effective Transient



Test Circuit

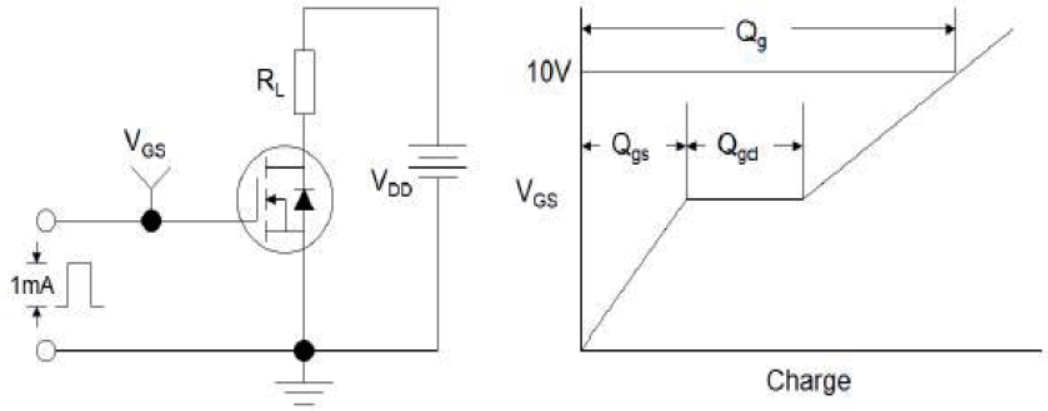


Figure1:Gate Charge Test Circuit & Waveform

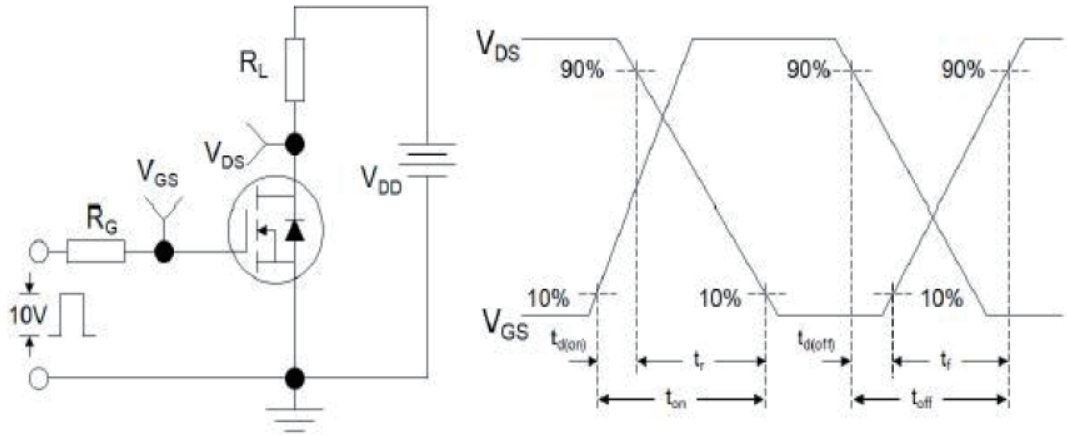


Figure 2: Resistive Switching Test Circuit & Waveforms

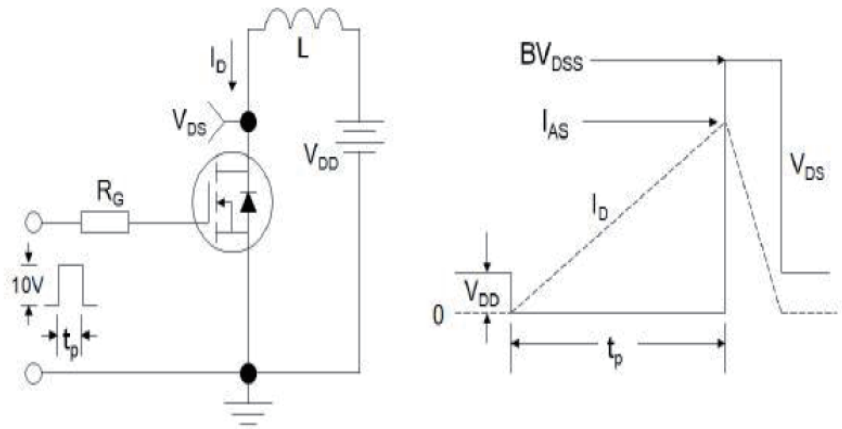
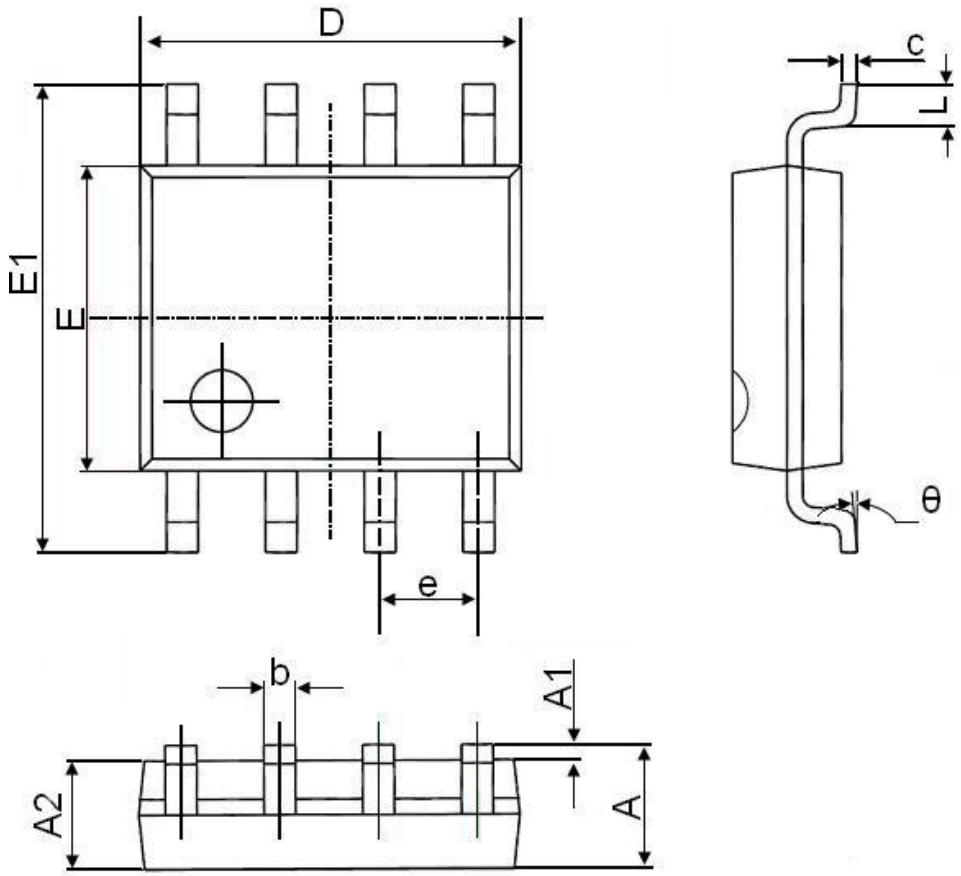


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.1	0.25	0.004	0.01
A2	1.35	1.55	0.053	0.061
b	0.33	0.51	0.013	0.02
c	0.17	0.25	0.006	0.01
D	4.7	5.1	0.185	0.2
E	3.8	4	0.15	0.157
E1	5.8	6.2	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.4	1.27	0.016	0.05
θ	0°	8°	0°	8°

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