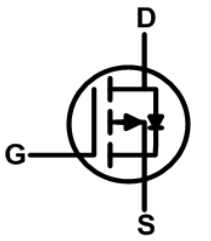
-30V P-Channel MOSFE

•General Description

The LH4435A uses trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.This device is suitable for high current load applications.

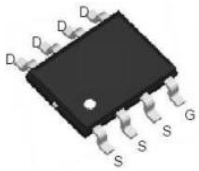


VDS =-30V

RDS(ON)=12mΩ

ID =-12A

■ RoHS COMPLIANT



SOP-8

•Features

■Advance high cell density trench technology
■Low RDS(ON) to minimize conductive loss
■Low Gate Charge for fast switching

•Application

■Lighting
■Power Supplies

•Ordering Information:

Part Number	JMP4435A
Package	SOP-8
Basic Ordering Unit (pcs)	4000
Normal Package Material Ordering Code	JMP4435A-SOP8-TAP
Halogen Free Ordering Code	JMP4435A-SOP8-TAP-HF

•Absolute Maximum Ratings（TC =25℃）

PARAMETER	SYMBOL	Value	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ,T_C = 25°C	I_D	-12	A
Pulsed drain current (TC = 25°C, tp limited by Tjmax)[1]	I_{DM}	-50	A
Single Pulse Avalanche Energy[2]	E_{AS}	75.6	mJ
Power Dissipation[3]	$P_D(T_A$=25℃)	3	W
	$P_D(T_A$=70℃)	2	
Operating Temperature	T_J	-55~+150	℃
Storage Temperature	T_{STG}	-55~+150	℃

●Electronic Characteristics

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0V, I_D=250uA	-30	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=250uA	-0.9	-1.5	-2.5	V
Drain-source On Resistance[1]	$R_{DS(ON)}$	V_{GS} =-10V, I_D=-6A	--	9.4	12	mΩ
		V_{GS} =-4.5V, I_D=-5A	--	14	17	
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-24V,V_{GS}=0V,T_J=25℃	--	--	-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20,V_{DS}=0V	--	--	±100	nA
Forward Transconductance	G_{FS}	V_{DS} =-5V, I_D=-20A	--	20	--	S
Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = -15V, f = 1.0MHz	--	1200	--	pF
Output Capacitance	Coss		--	200	--	
Reverse transfer Capacitance	Crss		--	150	--	
Turn-On Delay Time	$Td_{(on)}$	V_{DD}=-15V, V_{GS}=-10V, R_G=1Ω, I_D=-10A	--	11	--	nS
Turn-Off Delay Time	$Td_{(off)}$		--	28	--	
Turn-On Rise Time	T_r		--	6	--	
Turn-Off Fall Time	T_f		--	10	--	
Total Gate Charge	Qg	I_D =-10A, V_{DS} = -15V, V_{GS} =-10V	--	25	---	nC
Gate-to-Source Charge	Qgs		--	3.9	--	
Gate-to-Drain Charge	Qgd		--	4.8	---	
Continuous Diode Forward Current[1]	I_S	V_{Gs}=V_{DS}=0V, Force Current	--	--	-12	A
Pulsed Diode Forward Current	I_{SM}	--	--	--	-48	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=-20A, V_{GS} =0V	--	--	-1.2	V
Reverse Recovery Time	trr	If=Is di_F/dt=100A/μs	--	12.3	--	ns
Reverse Recovery Charge	Qrr		--	6.3	--	uC

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	Rth_{JC}	20	℃/W
Thermal Resistance Junction-ambient[4]	Rth_{JA}	42	℃/W

Notes:

1.Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2% ;

2.The EAS data shows Max. rating.The Test condition is L=1mH,I_D=12A,V_{DD}=-15V;

3.The Power Dissipation is limited by 150℃ junction temperature;

4.Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.

•Typical Characteristics

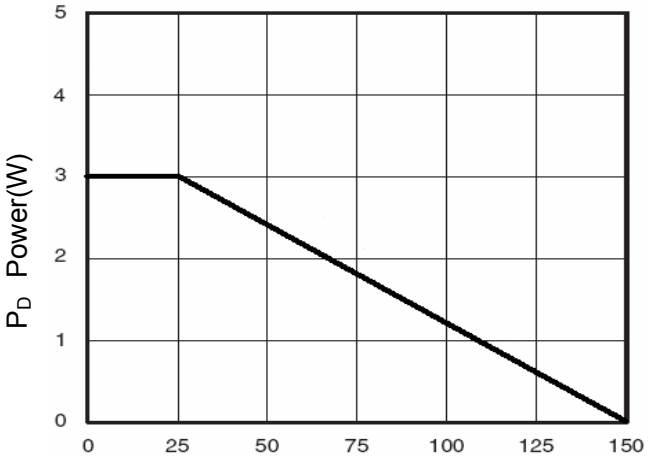


Figure 1 Power Dissipation

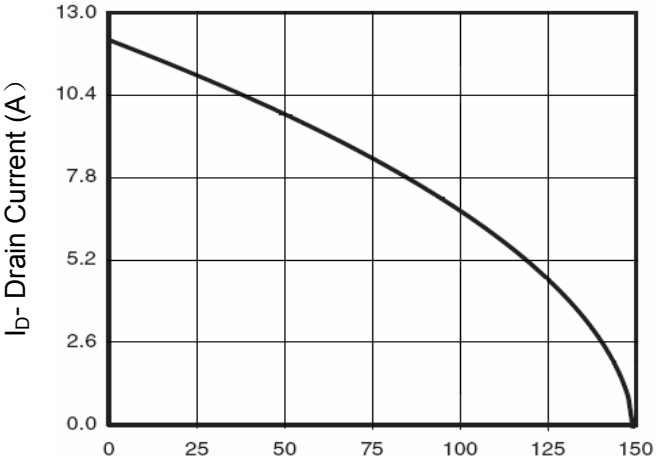


Figure 2 Drain Current

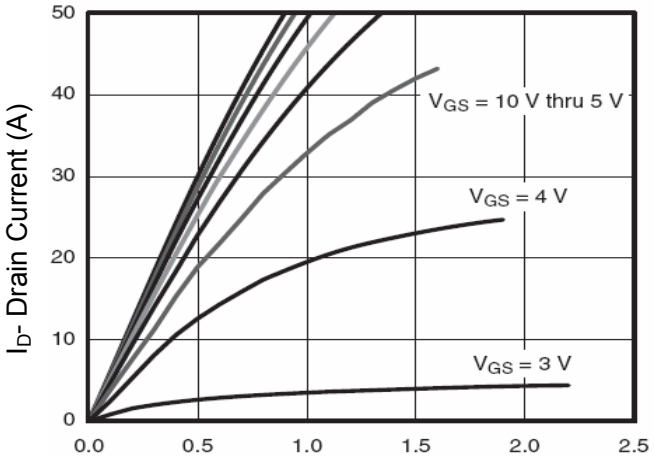


Figure 3 Output Characteristics

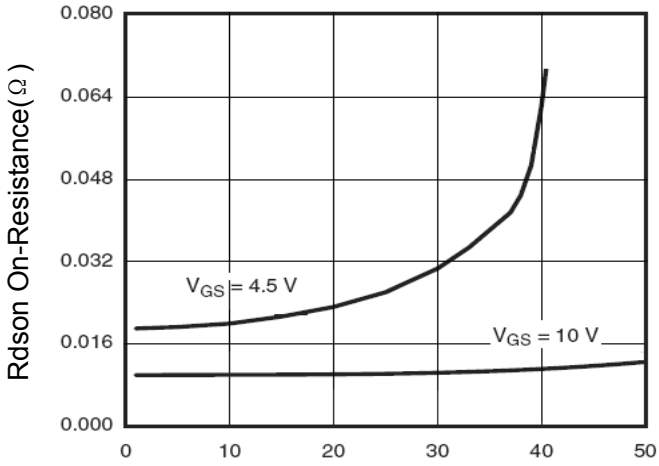


Figure 4 Drain-Source On-Resistance

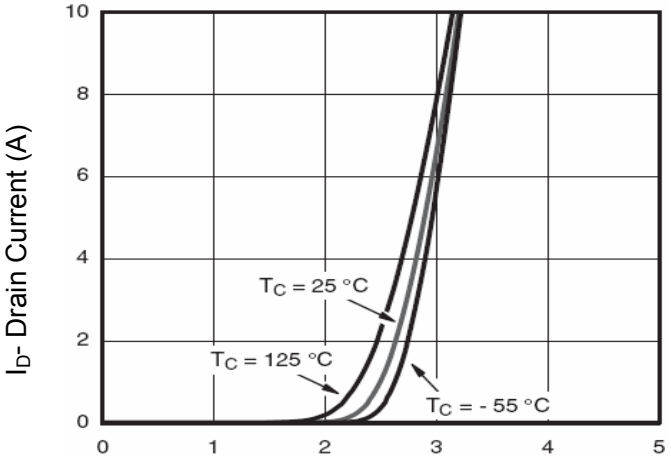


Figure 5 Transfer Characteristics

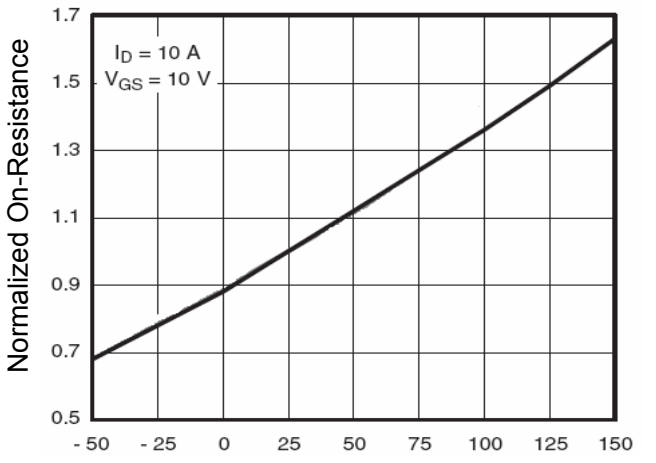


Figure 6 Drain-Source On-Resistance

• Typical Characteristics(Cont.)

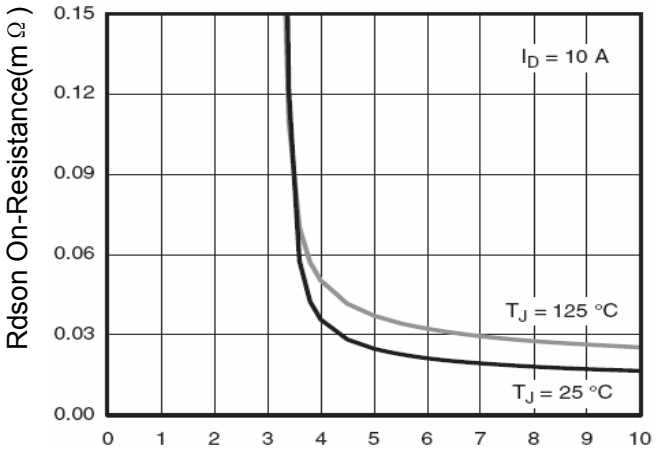


Figure 7 Rdson vs Vgs

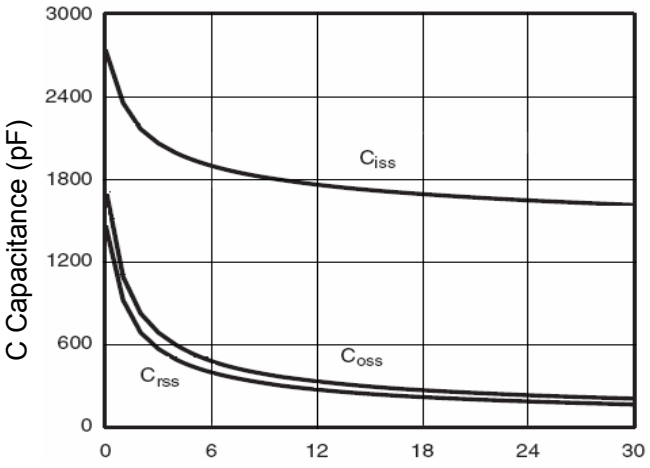


Figure 8 Capacitance vs Vds

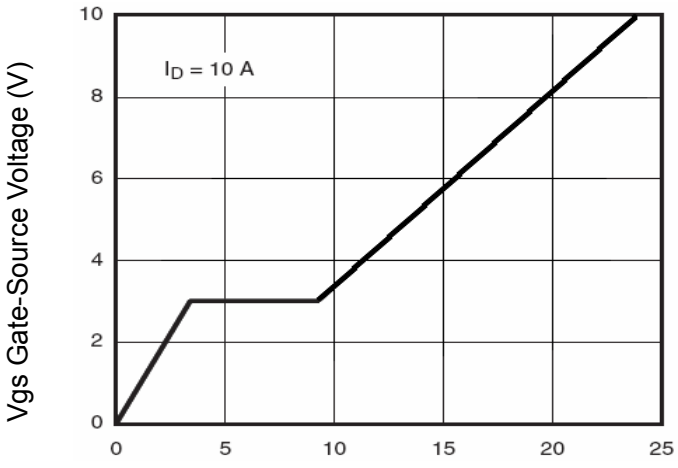


Figure 9 Gate Charge

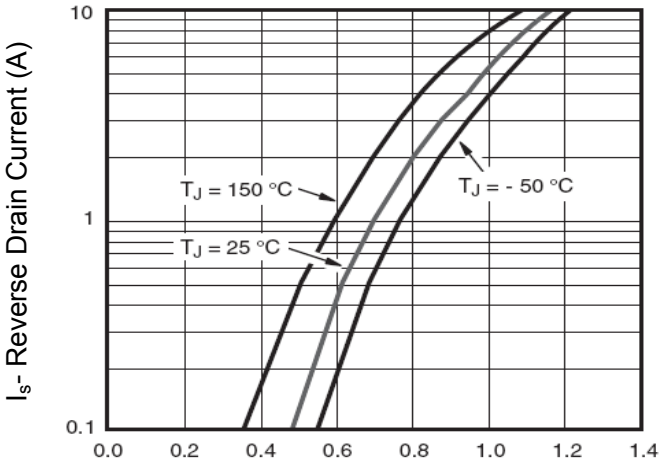


Figure 10 Source- Drain Diode Forward

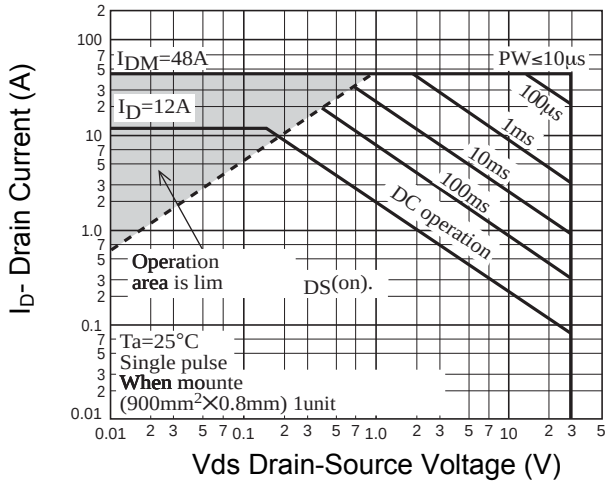


Figure 11 Safe Operation Area

• Typical Characteristics(Cont.)

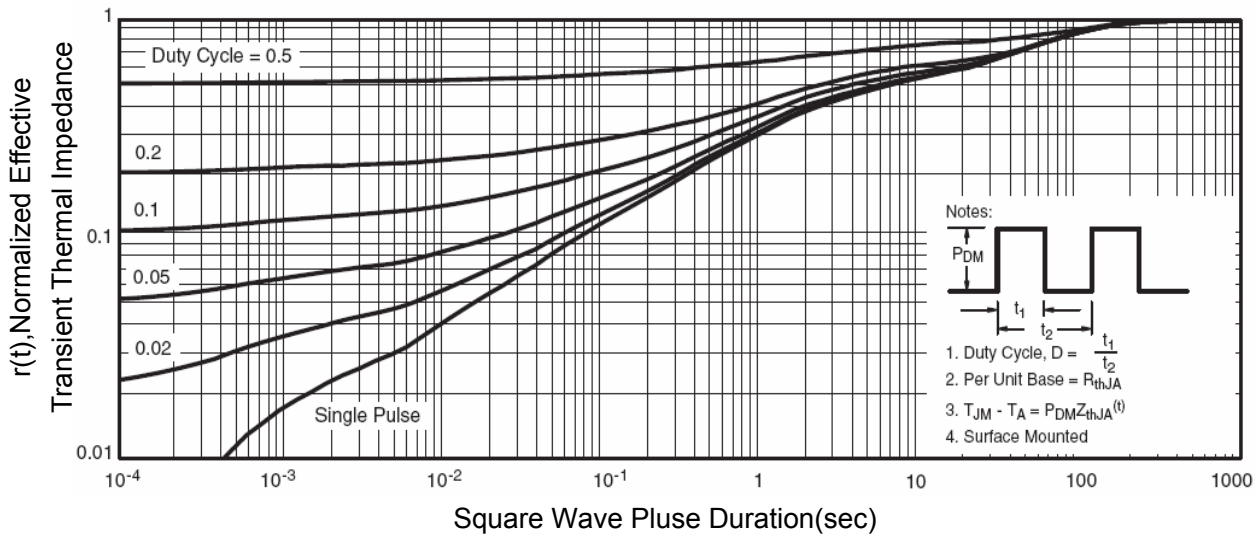


Figure 12 Normalized Maximum Transient Thermal Impedance

• Test Circuits & Waveforms

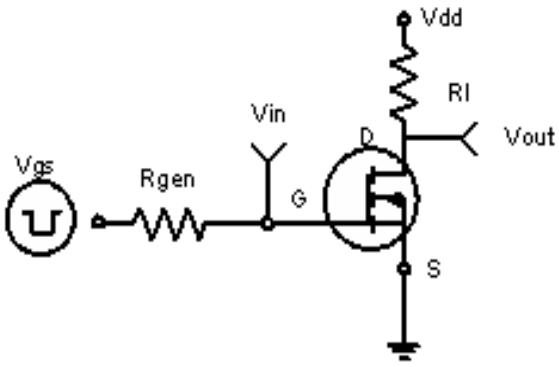


Figure 1 Switching Test Circuit

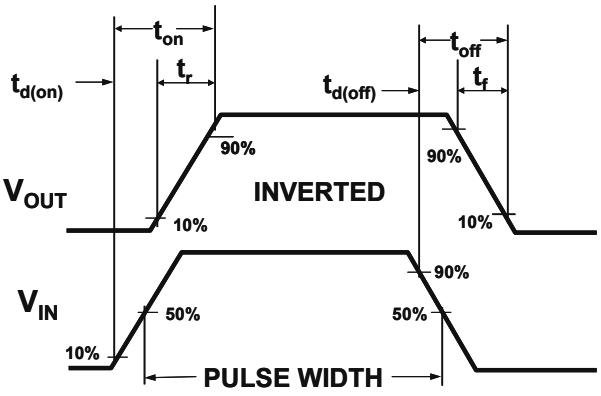


Figure 2 Switching Waveforms

●Dimensions（SOP-8)

UNIT:mm

SYMBOL	min	max	SYMBOL	min	max
A	1.30	1.60	e	1.27BSC	
A1	1.35	1.85	L	0.40	1.30
b	0.30	0.60			
C	0.15	0.35			
D	4.60	5.20			
E	3.70	4.10			
E1	5.70	6.30