

Descriptions

This-30V -8.8A P-Channel Enhancement Mode Field Effect Transistor in a SOP-8 Plastic Package

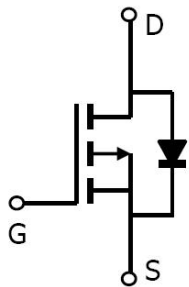
Features

- $V_{DS} (V) = -30V$
- $I_D = -8.8 A$
- $R_{DS(ON)} < 23m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 35m\Omega (V_{GS} = -4.5V)$
- Halogen Free.

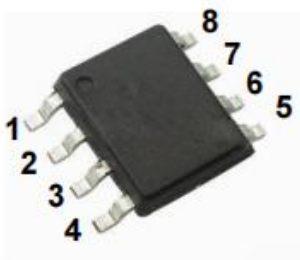
Applications

Power Management in Notebook computer, Portable Equipment and Battery powered systems.

Equivalent Circuit



Pinning



PIN1、 PIN 2、 PIN 3: Source PIN 4: Gate
PIN5、 PIN 6、 PIN 7、 PIN 8: Drain

Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DSS}	-30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current ^A	I _D (T _a =25°C)	-8.8	A
Continuous Drain Current ^A	I _D (T _a =70°C)	-7.0	A
Pulsed Drain Current ^B	I _{DM}	-50	A
Power Dissipation for Single Operation ^A	P _D (T _a =25°C)	2.5	W
Power Dissipation for Single Operation ^A	P _D (T _a =70°C)	1.2	W
Avalanche Current	I _{AR}	-20	A
Repetitive avalanche energy 0.3mH ^B	E _{AR}	50	mJ
Maximum Junction Temperature	T _j	150	°C
Storage Temperature Range	T _{stg}	-55 ~ +150	°C
Thermal Resistance-Junction to Ambient ^A	R _{θJA}	50	°C/W
Thermal Resistance-Junction to Ambient ^A	R _{θJA}	125	°C/W
Maximum Junction-to-Lead ^C	R _{θJL}	25	°C/W

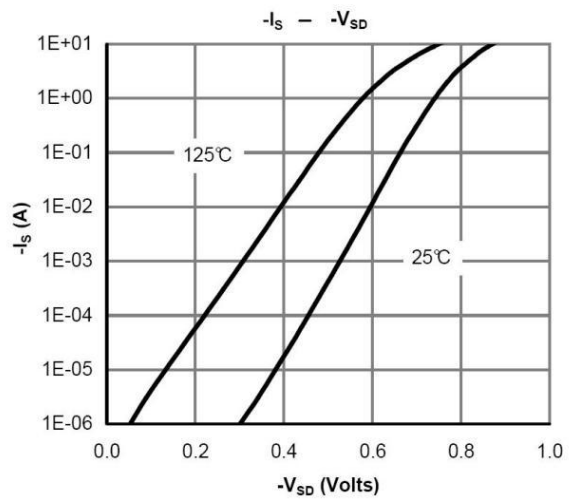
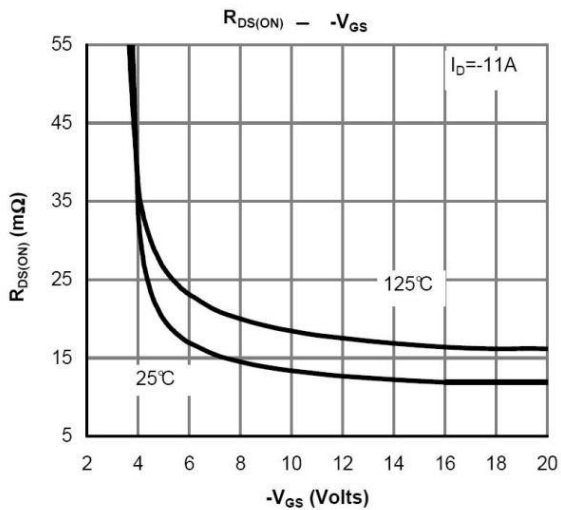
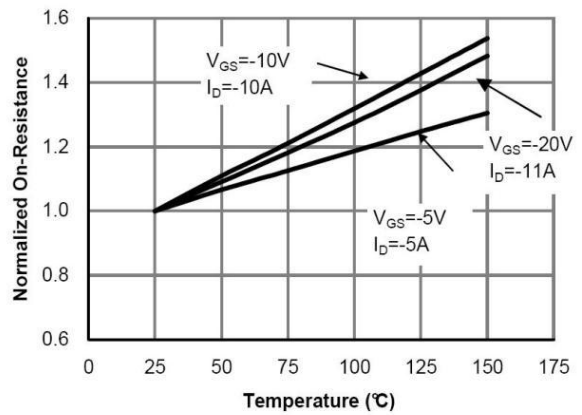
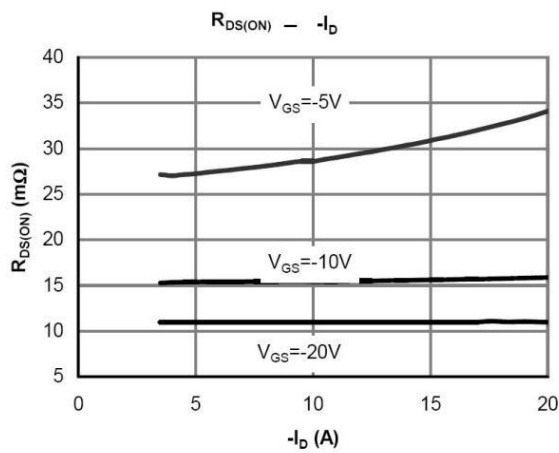
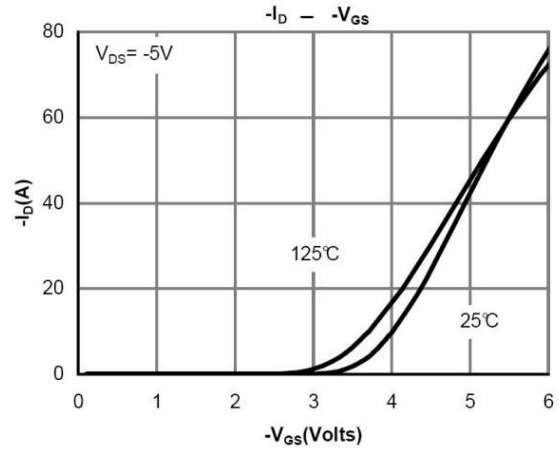
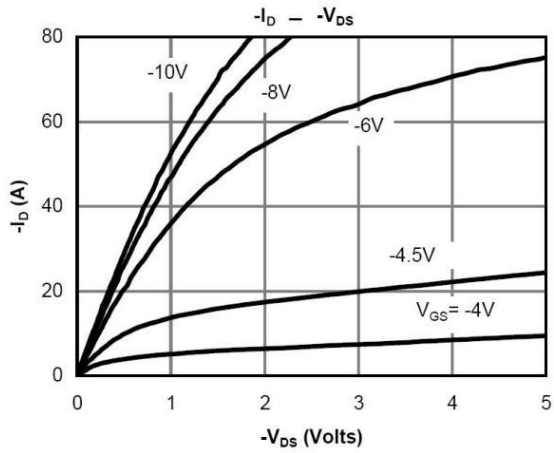
Note:

- A: The value of R_{θJA} is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C. The value in any given application depends on the user's specific board design. The current rating is based on the t ≤ 10s thermal resistance rating.
- B: Repetitive rating, pulse width limited by junction temperature.
- C: The R_{θJA} is the sum of the thermal impedance from junction to lead R_{θJL} and lead to ambient.
- D: The static characteristics in Figures 1 to 6 are obtained using <300μs pulses, duty cycle 0.5% max.
- E: These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The SOA curve provides a single pulse rating.
- F: The current rating is based on the t ≤ 10s thermal resistance rating.
- G: E_{AR} and I_{AR} ratings are based on low frequency and duty cycles to keep T_j=25°C.

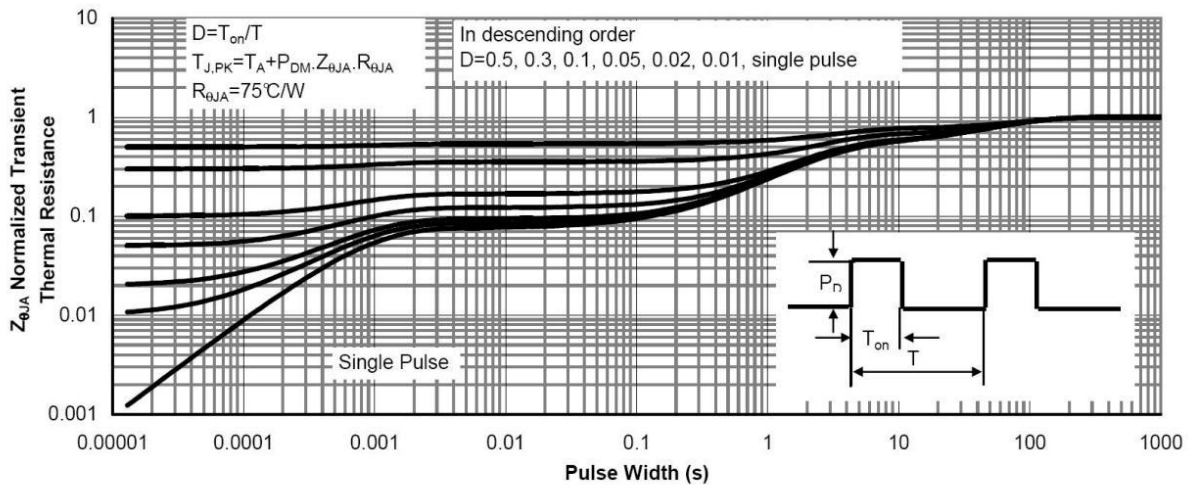
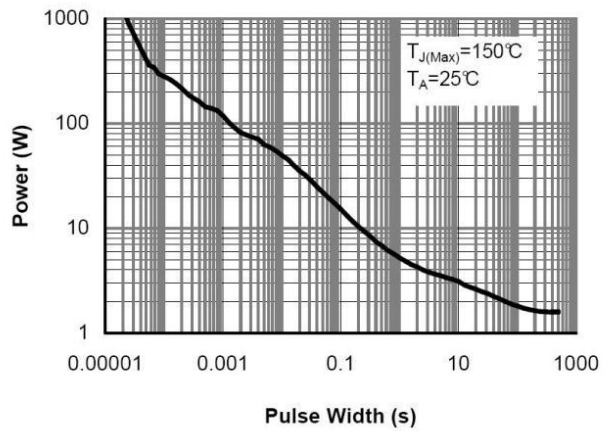
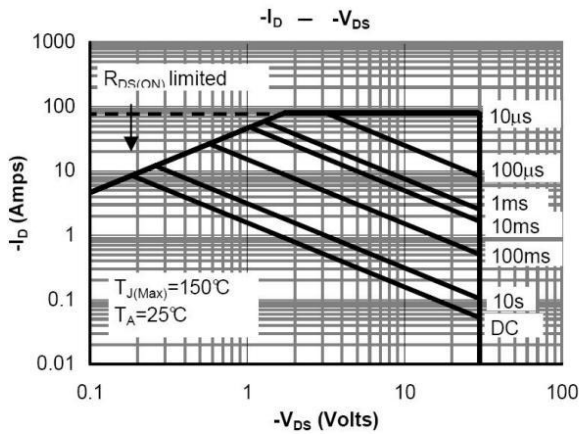
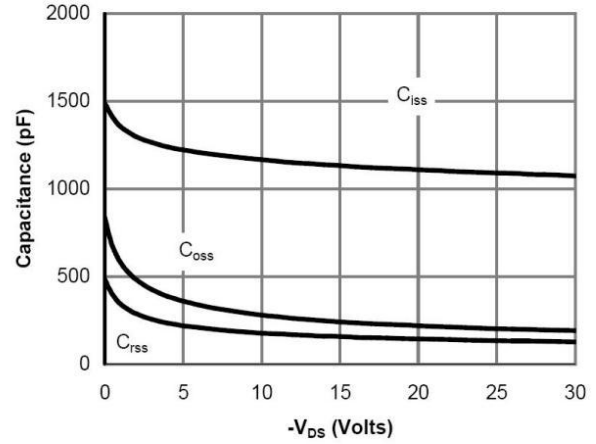
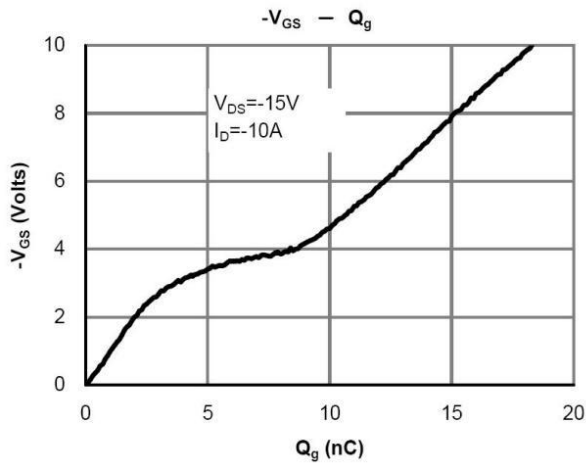
Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu A$ $V_{GS}=0V$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V$ $V_{GS}=0V$			-1.0	μA
		$V_{DS}=-30V$ $V_{GS}=0V$ $T_J=55^\circ C$			-5.0	
Gate-Body leakage current	I_{GSS}	$V_{DS}=0V$ $V_{GS}=\pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-1.0	-1.7	-3.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V$ $I_D=-8.8A$		18	23	m Ω
		$V_{GS}=-10V$ $I_D=-8.8A$ $T_J=125^\circ C$		25	32	
		$V_{GS}=-4.5V$ $I_D=-6.7A$		27	35	
Forward Transconductance	g_{FS}	$V_{DS}=-5V$ $I_D=-8.8A$		12		S
Diode Forward Voltage	V_{SD}	$I_S=-2.1A$ $V_{GS}=0V$		-0.73	-1.2	V
Maximum Body-Diode Continuous Current	I_S				-2.1	A
Total Gate Charge	Q_g	$V_{GS}=-5V$ $V_{DS}=15V$ $I_D=-8.8A$		17	24	nC
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			6		
Input Capacitance	C_{iss}	$V_{GS}=0V$ $V_{DS}=-15V$ $f=1MHz$		1604		pF
Output Capacitance	C_{oss}			408		
Reverse Transfer Capacitance	C_{rss}			202		
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $I_D=-1A$ $R_{GEN}=6\Omega$		13	23	ns
Turn-on Rise Time	t_r			13.5	24	
Turn-off Delay Time	$t_{d(OFF)}$			42	68	
Turn-off Fall Time	t_f			25	40	

Electrical Characteristic Curve

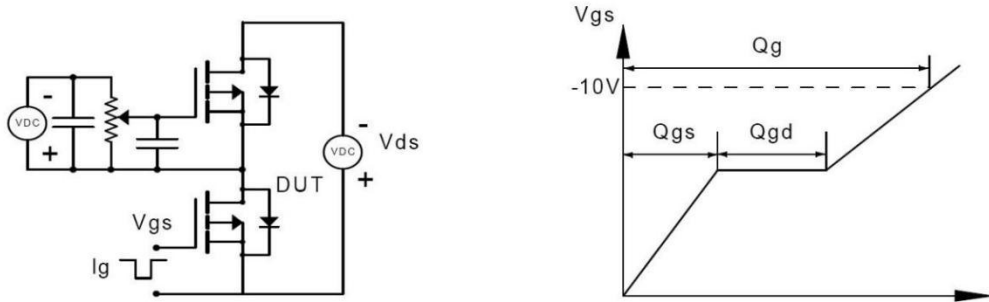


Electrical Characteristic Curve

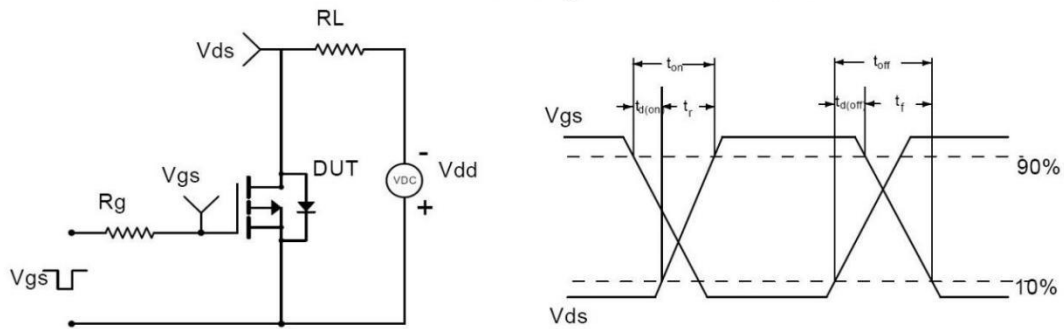


Test Circuit & Waveform

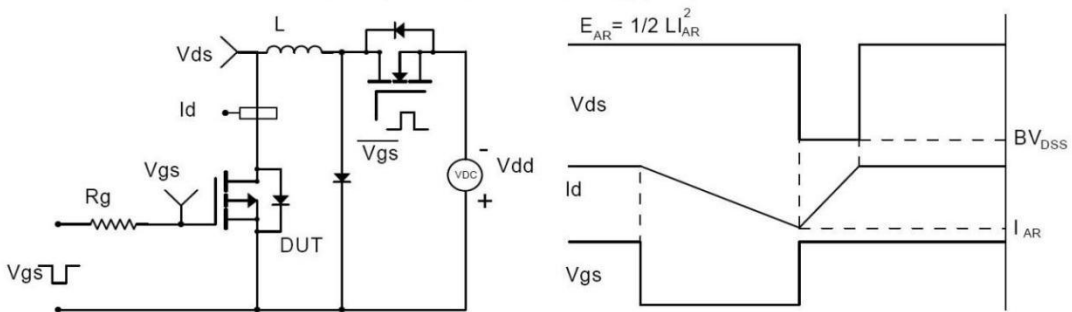
Gate Charge Test Circuit & Waveform



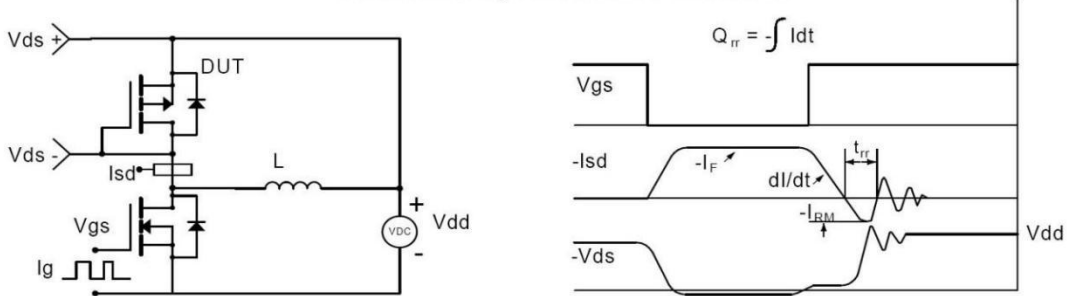
Resistive Switching Test Circuit & Waveforms



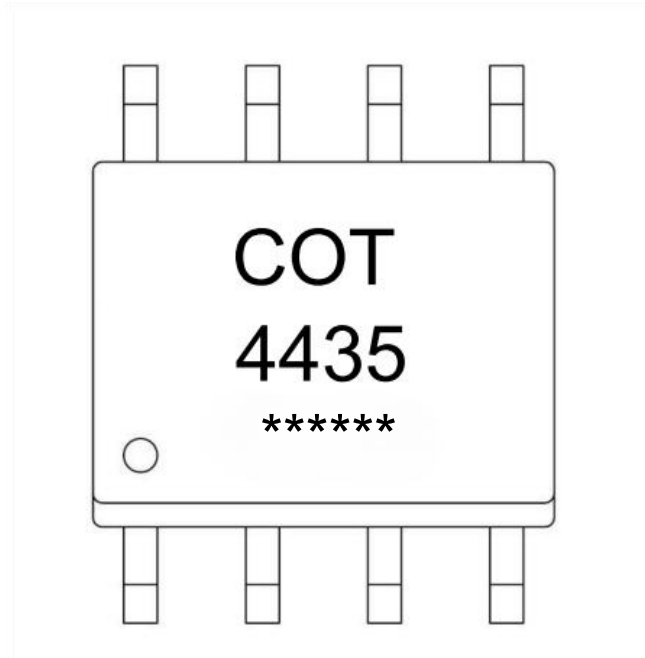
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Marking Instructions



Note:

COT: Company Logo

4435: Product Type.

*****: Lot No. Code, code change with Lot No.

Packaging SPEC

REEL INFORMATION

Package Type	Units					Dimension (unit: mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOP-8	4,000	2	8,000	6	48,000	13" ×12	360×360×50	380×335×366

Package Outline Dimensions

SOP-8

Unit:mm

