

Description

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

Applications

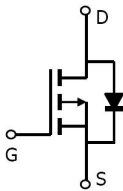
Power Management in Notebook computer, Portable Equipment and Battery powered systems.

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.

V_{DSS}	$R_{DS(on)}$ Typ	I_D
-30V	18m Ω	-8.8A

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	$I_D (T_a=25^\circ\text{C})$	-8.8	A
Continuous Drain Current ^A	$I_D (T_a=70^\circ\text{C})$	-7.0	A
Pulsed Drain Current ^B	I_{DM}	-50	A
Power Dissipation for Single Operation ^A	$P_D (T_a=25^\circ\text{C})$	2.5	W
Power Dissipation for Single Operation ^A	$P_D (T_a=70^\circ\text{C})$	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	$R_{\theta JA}$	50	°C/W
Thermal Resistance-Junction to Ambient ^A	$R_{\theta JA}$	125	°C/W
Maximum Junction-to-Lead ^C	$R_{\theta JL}$	25	°C/W

Note:

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10\text{s}$ thermal resistance rating.

B: Repetitive rating, pulse width limited by junction temperature.

C: The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

D: The static characteristics in Figures 1 to 6 are obtained using $<300\mu\text{s}$ 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 $T_A=25^\circ\text{C}$. The SOA curve provides a single pulse rating.

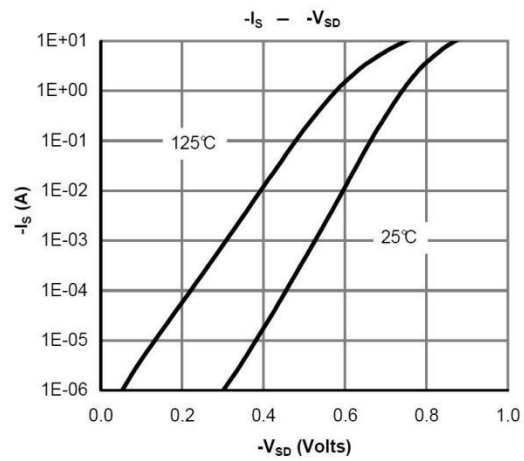
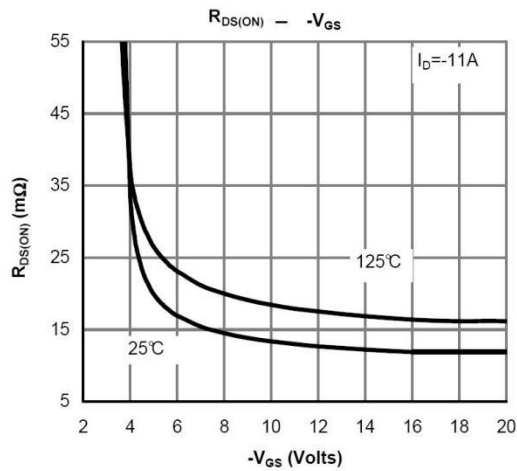
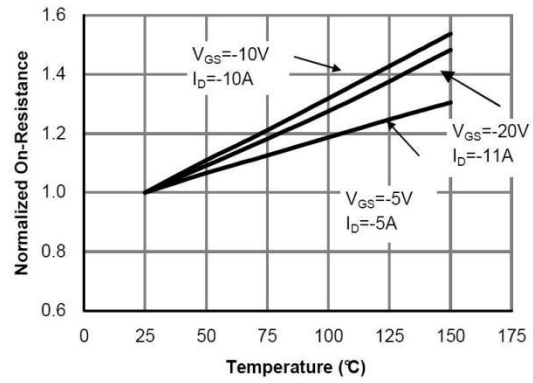
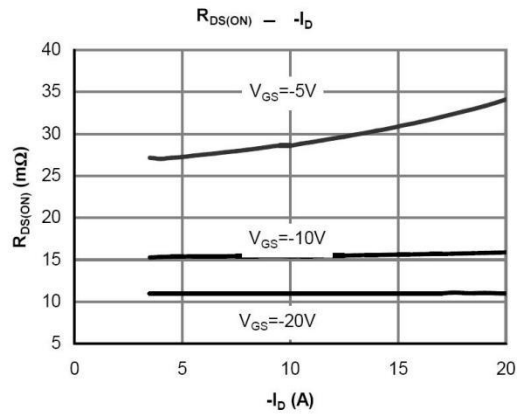
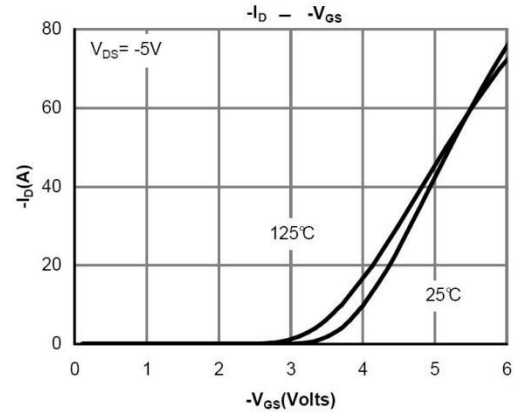
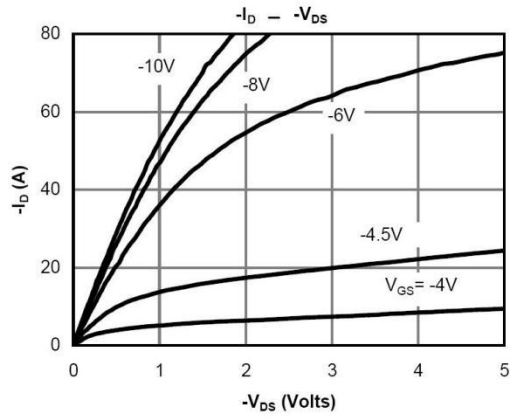
F: The current rating is based on the $t \leq 10\text{s}$ thermal resistance rating.

G: E_{AR} and I_{AR} ratings are based on low frequency and duty cycles to keep $T_j=25^\circ\text{C}$.

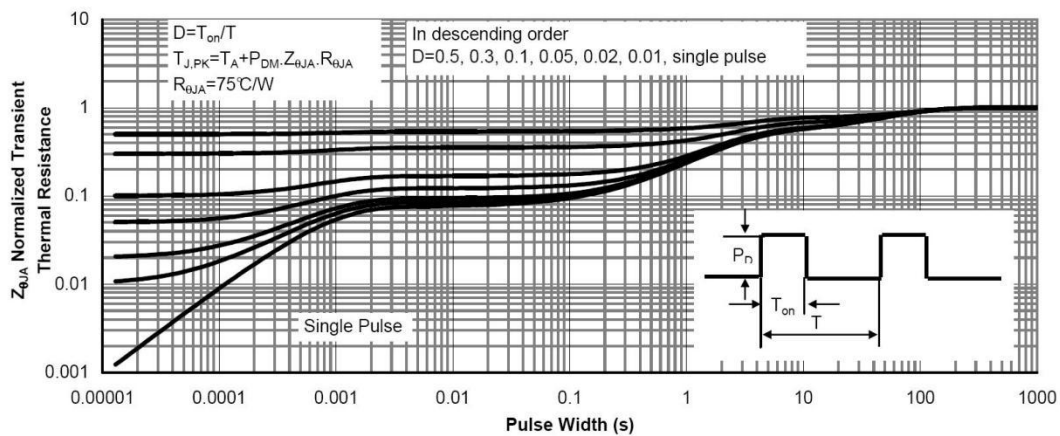
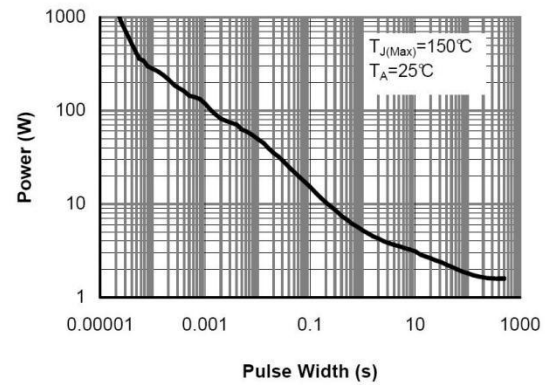
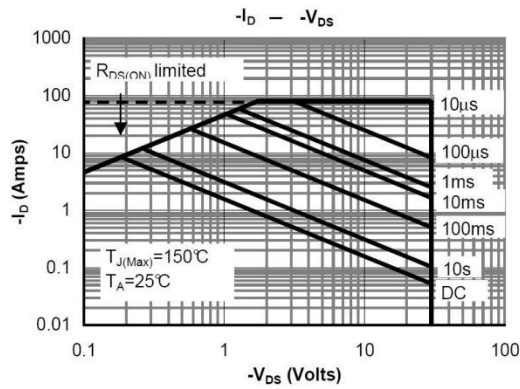
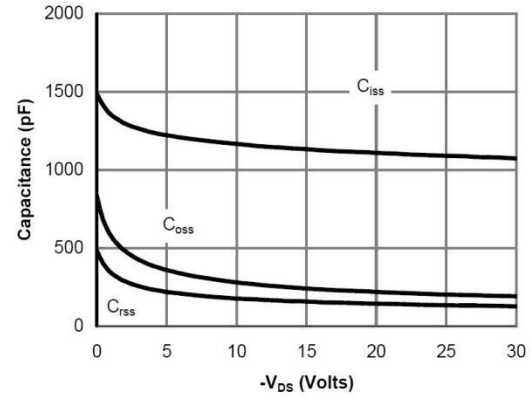
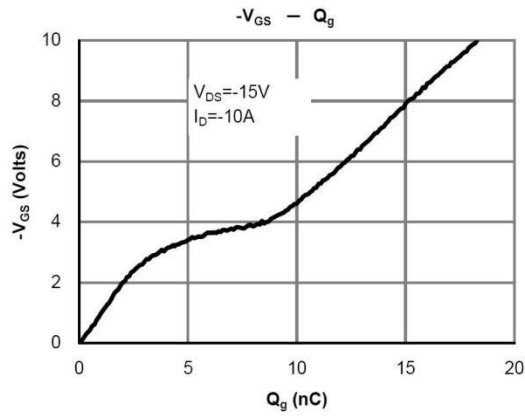
Electrical Characteristics(Ta=25°C)

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

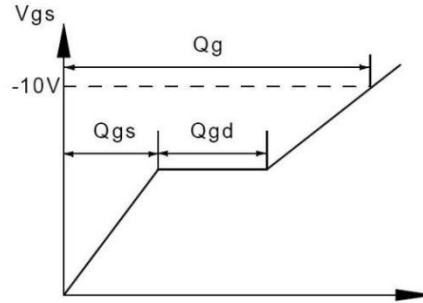
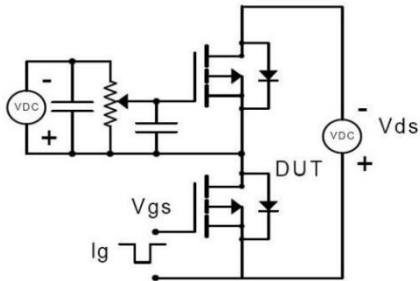


Electrical Characteristic Curve

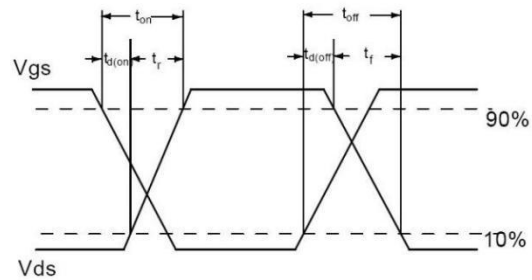
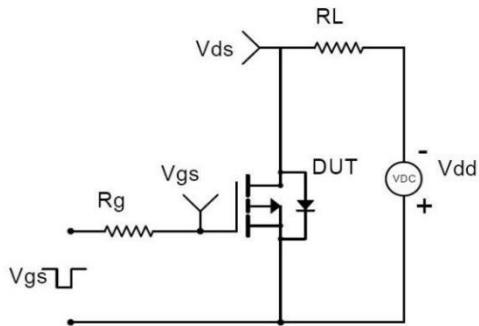


Test Circuit & Waveform

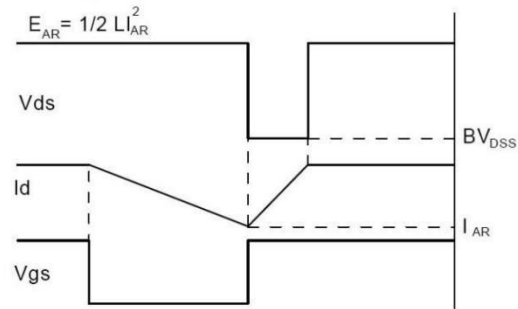
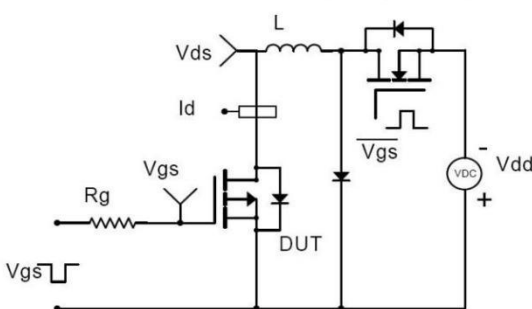
Gate Charge Test Circuit & Waveform



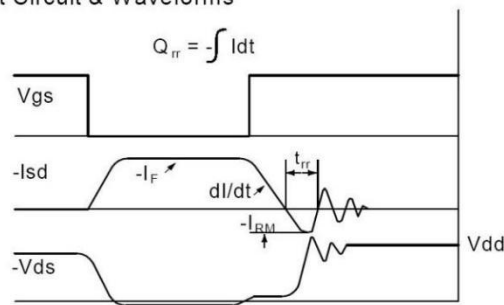
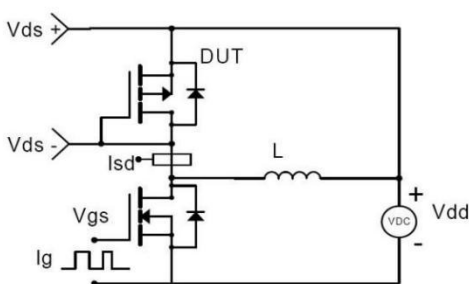
Resistive Switching Test Circuit & Waveforms



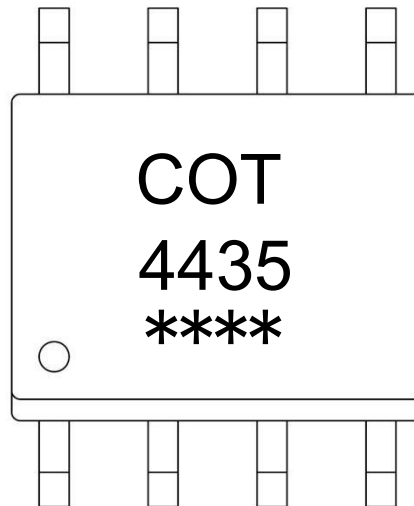
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Marking Instructions



Note:

COT: Company Logo

4435: Product Type.

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

Packaging SPEC.

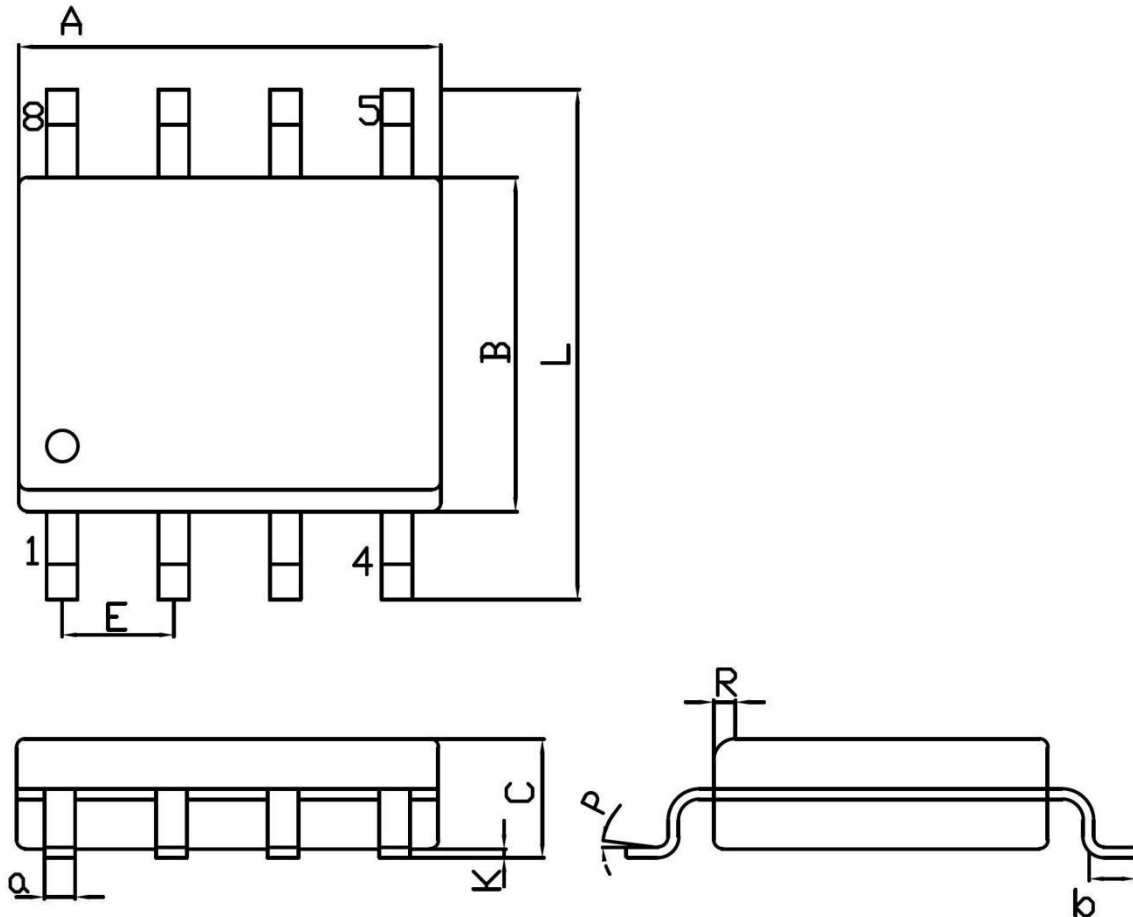
REEL INFORMATION

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" x12	360×360×50	380×335×366

Package Outline Dimensions

SOP-8

Unit:mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.70	5.10	C	1.35	1.75
B	3.70	4.10	a	0.35	0.49
L	5.80	6.20	R	0.30	0.60
E	1.27BSC		P	0°	7°
K	0.12	0.22	b	0.40	1.25