Description

This 30V 6.9A N-Channel Enhancement Mode Field Effect Transistor in a SOP-8 Plastic Package.

Applications

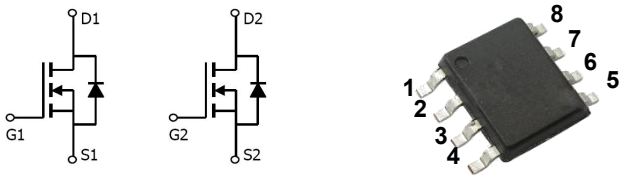
Power Management in Notebook computer, Portable Equipment and Battery powered systems and this device is suitable for use as a load switch or in PWM applications.

Features

- V_{DS}(V)=30V I_D=6.9A
- $R_{DS(ON)}$ <32mΩ(V_{GS}=10V)
- $R_{DS(ON)}$ <36mΩ(V_{GS}=4.5V)
- $R_{DS(ON)}$ <52mΩ(V_{GS}=2.5V)

V_{DSS}	$R_{DS(on)}$ Typ	I_D
30V	24mΩ	6.9A

Equivalent Circuit & Pinning



PIN1：S2 PIN 2：G2 PIN 3：S1 PIN 4：G1
PIN 5：D1 PIN 6：D1 PIN 7：D2 PIN 8：D2

Absolute Maximum Ratings(Ta=25℃)

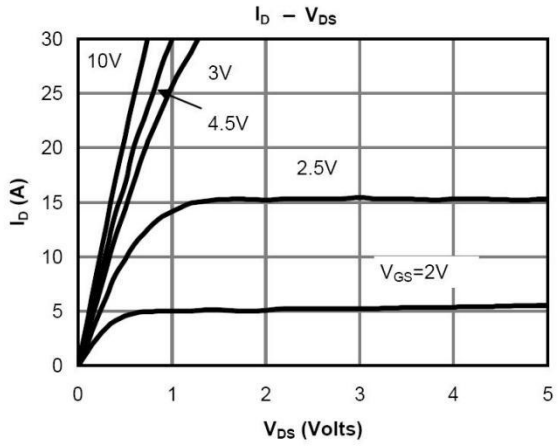
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current[A]	I_D (T_a=25°C)	6.9	A
	I_D (T_a=70°C)	5.8	A
Pulsed Drain Current[B]	I_{DM}	40	A
Power Dissipation for Single Operation[A]	P_D (T_a=25℃)	2.0	W
	P_D (T_a=70℃)	1.44	W
Junction and Storage Temperature Range	T_j,T_{stg}	-55～+150	℃
Thermal Resistance-Junction to Ambient[A]	$R_{\theta JA}$ (t≦10s)	62.5	℃/W
	$R_{\theta JA}$	110	℃/W
Maximum Junction-to-Lead[C]	$R_{\theta JL}$	40	℃/W

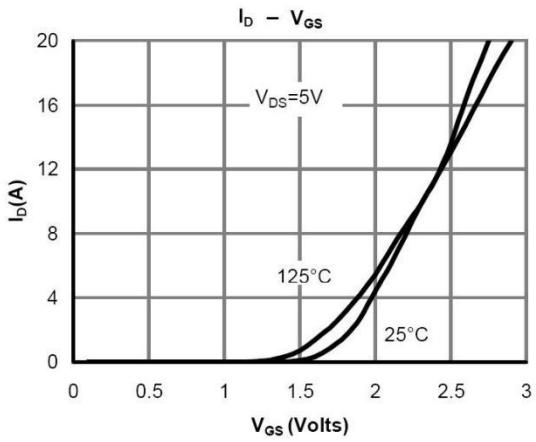
Note:
A:The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any a given application depends on the user's specific board design. The current rating is based on the t ≤ 10s thermal resistance rating.
B: Repetitive rating, pulse width limited by junction temperature.
C. The $R_{\theta JA}$ 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 80 μs pulses, duty cycle 0.5% max.
E. These tests are performed with the device mounted on 1 in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The SOA curve provides a single pulse rating.

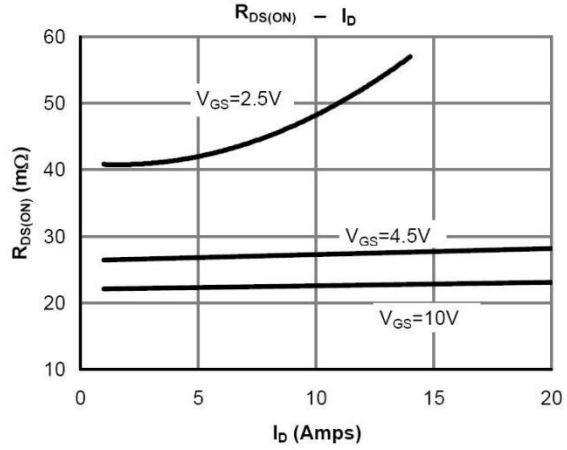
Electrical Characteristics(Ta=25℃)

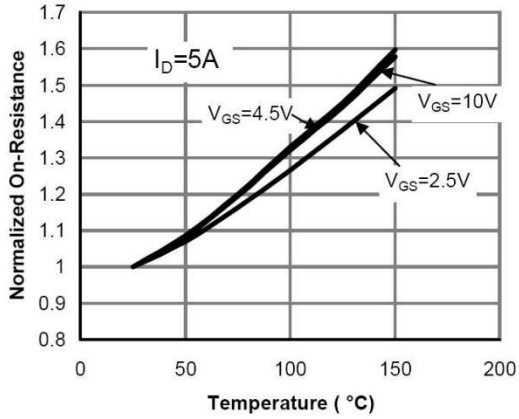
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250μA V_{GS}=0V	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V V_{GS}=0V			1.0	μA
		V_{DS}=24V V_{GS}=0V T_J=55°C			5.0	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V V_{GS}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	0.7	1.1	1.4	V
On state drain current	$I_{D(ON)}$	V_{GS}=4.5V V_{DS}=5.0V	6.9			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V I_D=6.9A		24	32	mΩ
		V_{GS}=10V I_D=6.9A T_J=125°C		32.3	38	
		V_{GS}=4.5V I_D=6.0A		27	36	
		V_{GS}=2.5V I_D=5.0A		40	52	
Forward Transconductance	g_{FS}	V_{DS}=5.0V I_D=5.0A	10	15		S
Diode Forward Voltage	V_{SD}	I_S=1.0A		0.77	1.0	V
Maximum Body-Diode Continuous Current	I_S				3.0	A
Total Gate Charge	Q_g	V_{GS}=4.5V V_{DS}=15V I_D=6.9A		9.6		nC
Gate-Source Charge	Q_{gs}			1.65		
Gate-Drain Charge	Q_{gd}			3.0		
Gate Resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		1.24		Ω
Input Capacitance	C_{iss}	V_{GS}=0V V_{DS}=15V f=1MHz		858		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			80		
Turn-on Delay Time	$t_{d(ON)}$	V_{GS}=10V V_{DS}=15V R_L=2.2Ω R_{GEN}=6.0Ω		5.7		ns
Turn-on Rise Time	t_r			13		
Turn-off Delay Time	$t_{d(OFF)}$			37		
Turn-off Fall Time	t_f			4.2		
Body Diode Reverse Recovery Time	t_{rr}	I_F=5.0A dI/dt=100A/μs		15.5		ns
Body Diode Reverse Recovery Charge	Q_{rr}	I_F=5.0A dI/dt=100A/μs		7.9		nC

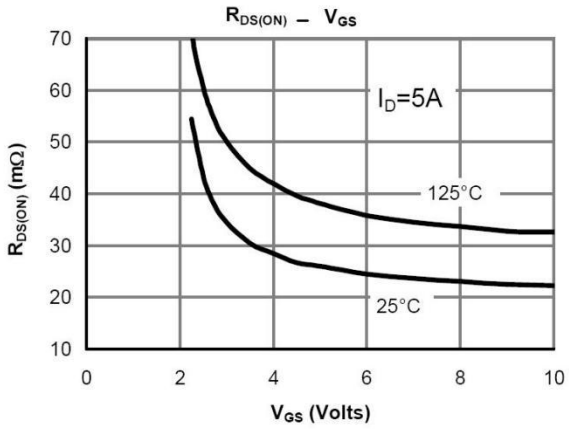
Electrical Characteristic Curve

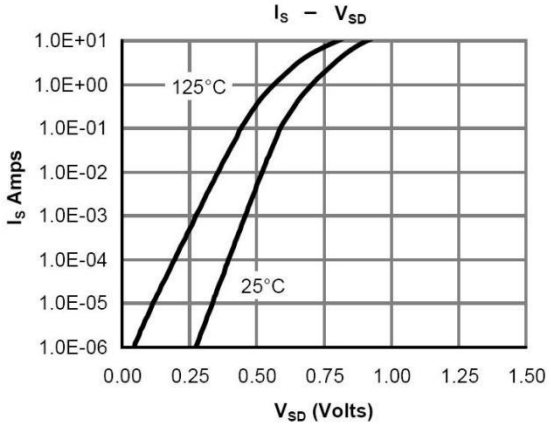




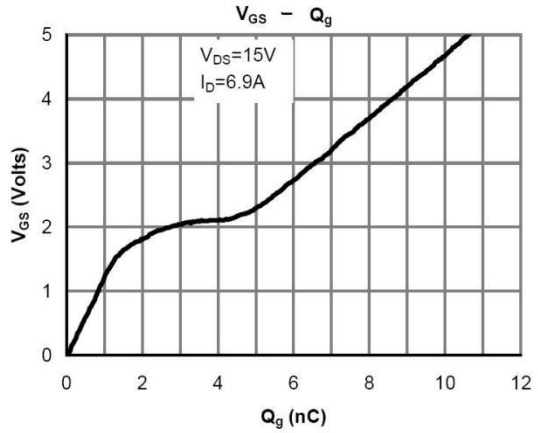


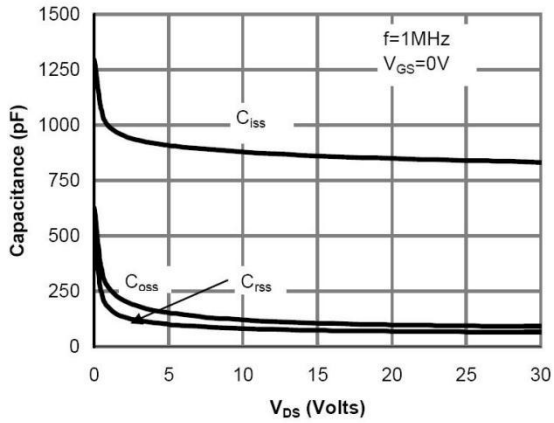


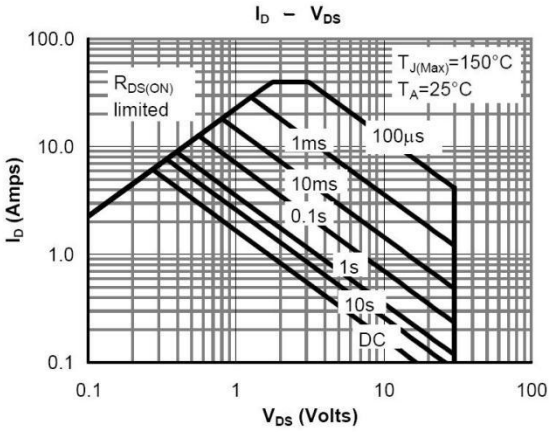


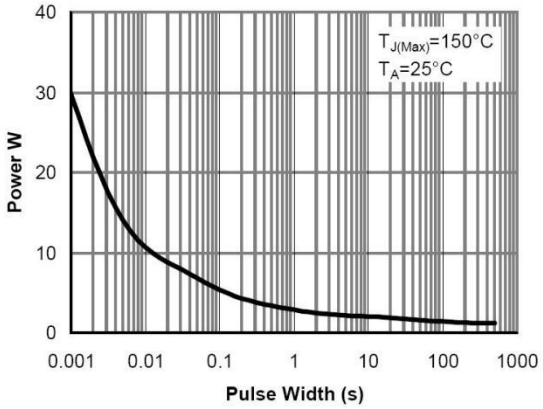


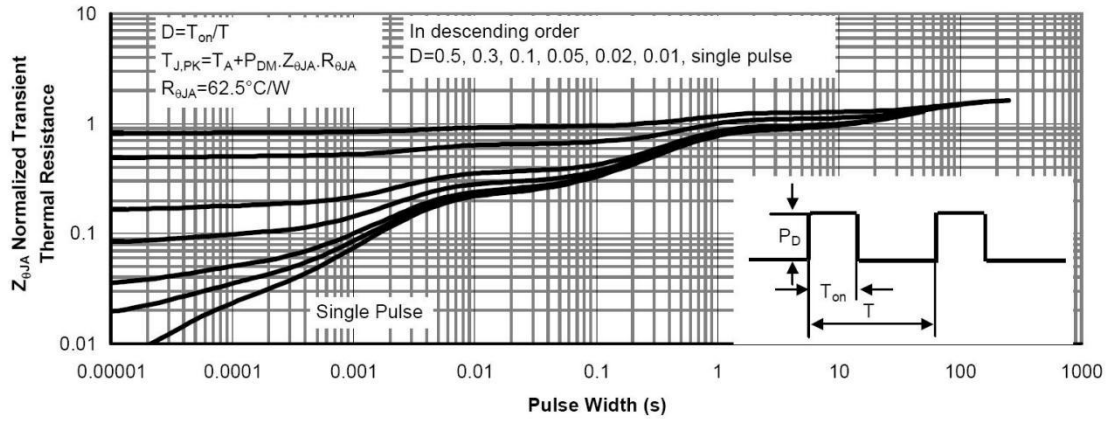
Electrical Characteristic Curve



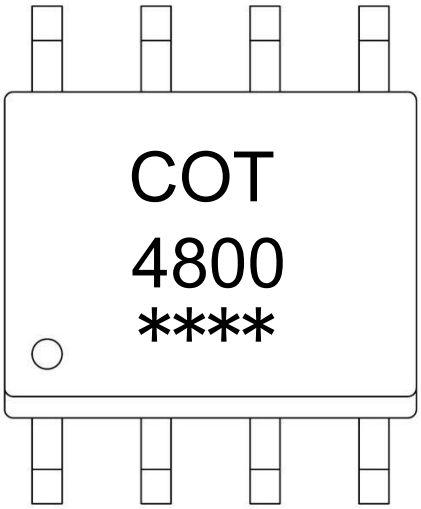








Marking Instructions



Note:

COT: Company Logo

4800: Product Type.

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

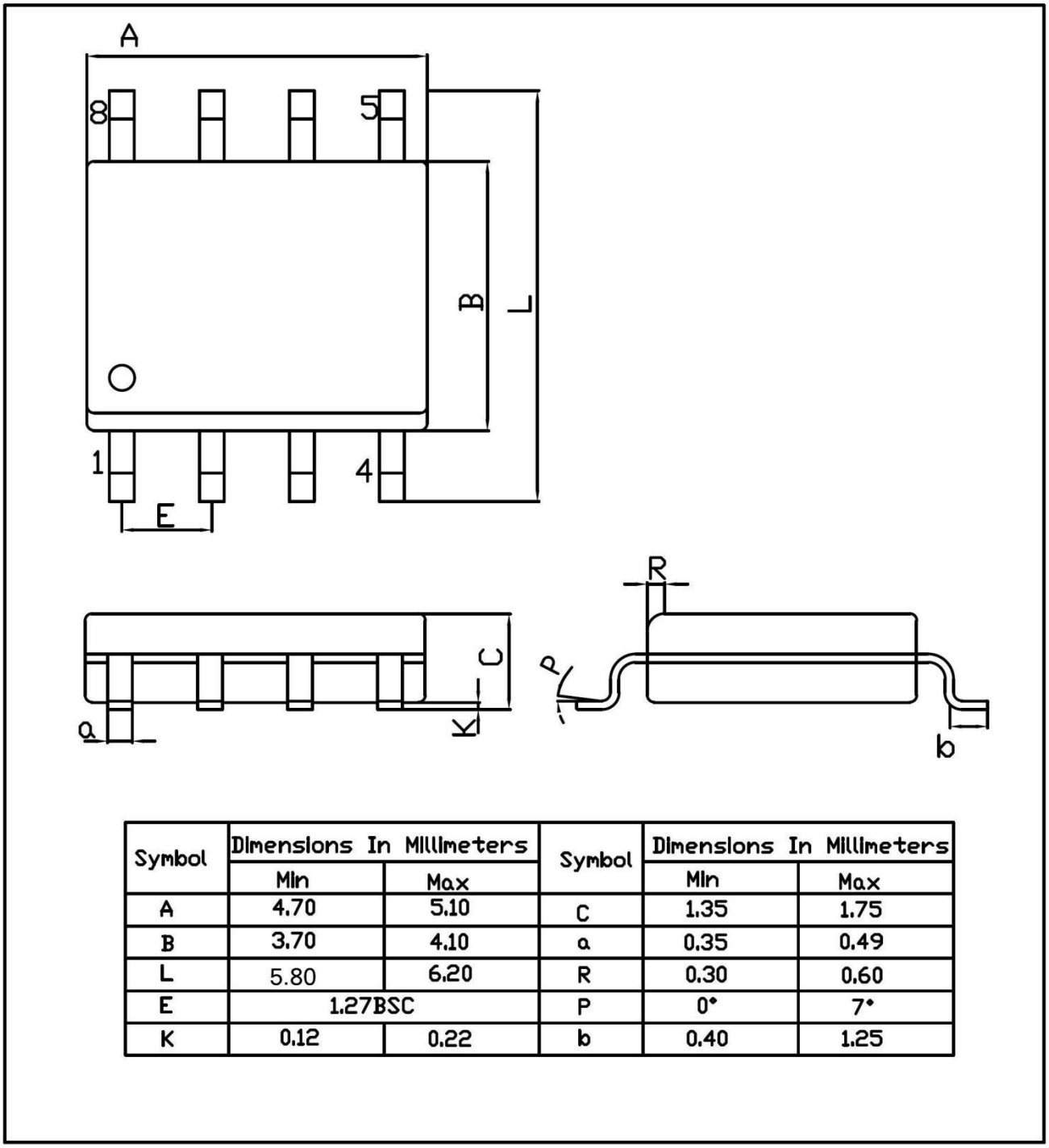
Packaging SPEC.

REEL INFORMATION

Package Type	Units					Dimension (unit：mm³)		
	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



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