

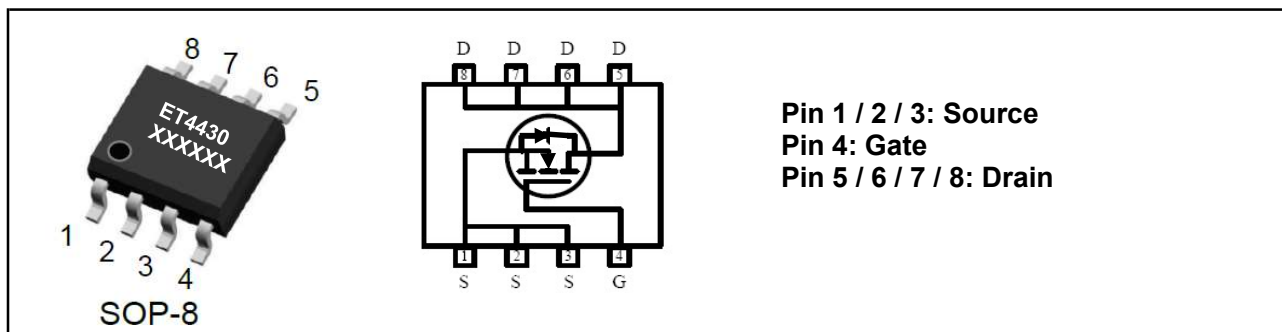
N-Channel Enhancement-Mode MOSFET (30V, 18A)

PRODUCT SUMMARY

V_{DS}	I_D	$R_{DS(on)}$ (m Ω) Typ.
30V	18A	4 @ $V_{GS} = 10V$, $I_D = 18A$
		5 @ $V_{GS} = 4.5V$, $I_D = 10A$

Features

- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Lead (Pb) -free and halogen-free



Absolute Maximum Ratings ($T_A = 25^\circ C$, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current (Continuous) @ $T_A = 25^\circ C$	18	A
	Drain Current (Continuous) @ $T_A = 75^\circ C$	12	A
I_{DM}	Drain Current (Pulsed) ^a	80	A
P_D	Total Power Dissipation @ $T_A = 25^\circ C$	1.6	W
	Total Power Dissipation @ $T_A = 75^\circ C$	1	W
I_S	Maximum Diode Forward Current	2	A
EAS	Avalanche Energy, Single pulse ($L = 0.1mH$) ^d	29	mJ
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ C$
R_{QJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	32	$^\circ C/W$

a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

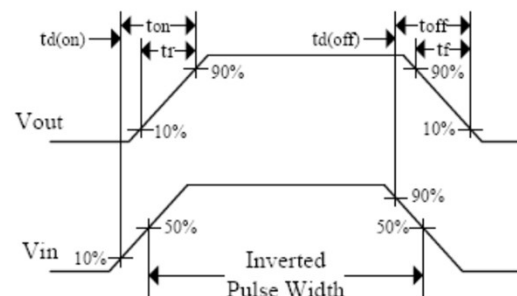
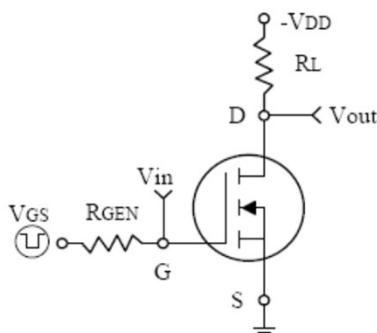
b: 1-in² 2oz Cu PCB board

d:: UIS tested and pulse width limited by maximum junction temperature 150 $^\circ C$ (initial temperature $T_J = 25^\circ C$).

Electrical Characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

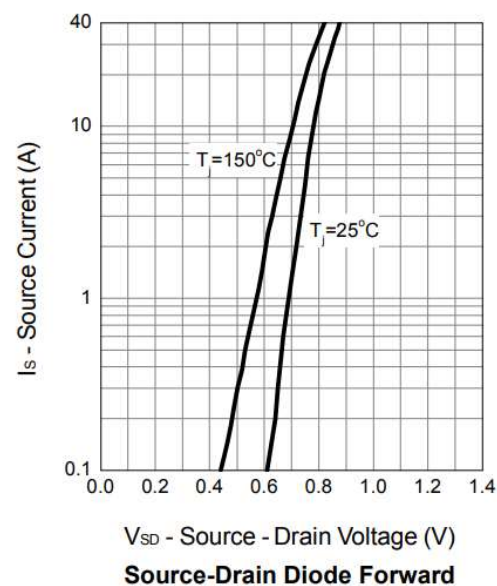
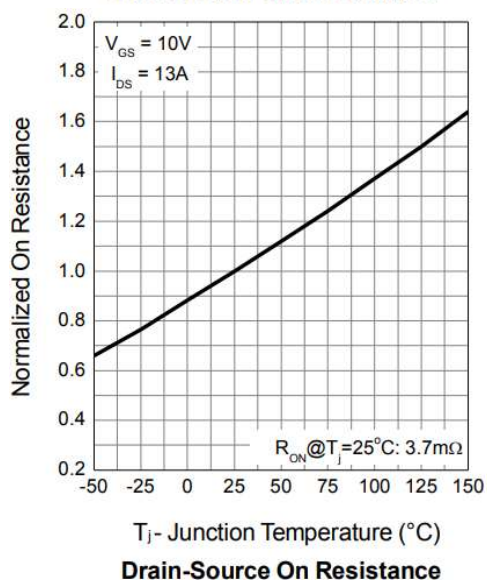
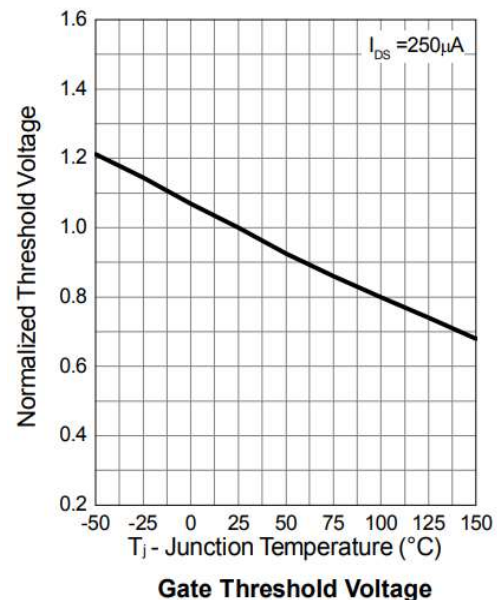
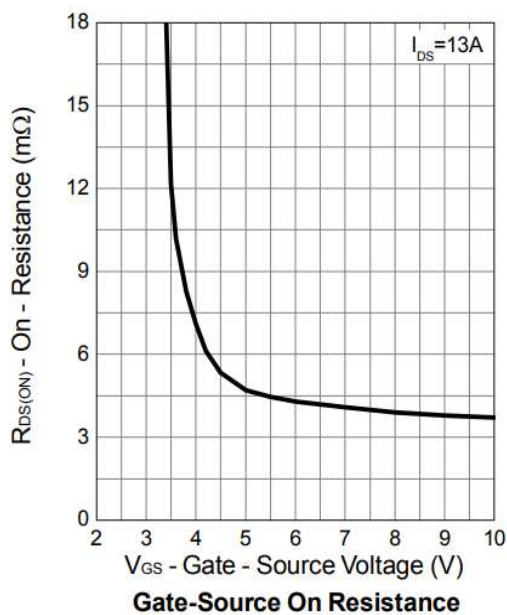
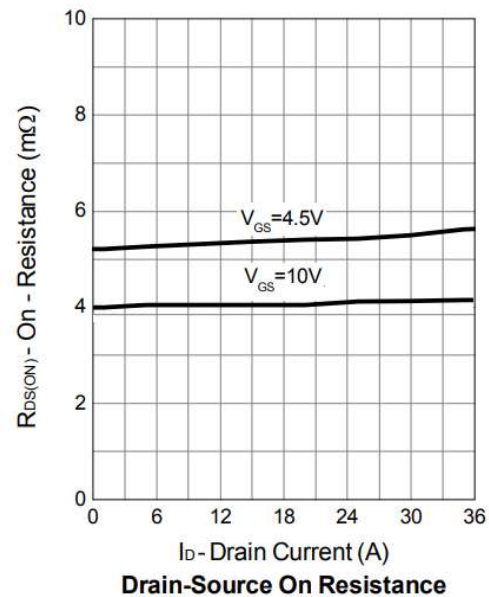
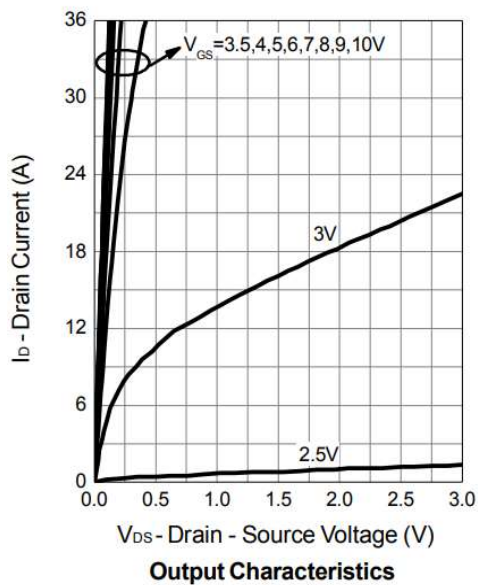
Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	33	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
• On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.0	1.2	2.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =18A	-	4	5.5	mΩ
		V _{GS} =4.5V, I _D =10A	-	5.2	7.5	
GFS	Forward Transconductance	V _{DS} =8, I _D =9A	-	22	-	S
• Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	-	1850	-	PF
C _{oss}	Output Capacitance		-	935	-	
C _{rss}	Reverse Transfer Capacitance		-	270	-	
• Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =15V, I _D =13A, V _{GS} =4.5V	-	20	-	nC
Q _{gs}	Gate-Source Charge		-	9.5	-	
Q _{gd}	Gate-Drain Charge		-	3.7	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =15V, R _L =15Ω, I _D =1A, V _{GEN} =10V, R _G =6Ω	-	13.7	-	nS
t _r	Turn-on Rise Time		-	12.3	-	
t _{d(off)}	Turn-off Delay Time		-	23	-	
t _f	Turn-off Fall Time		-	31	-	
• Drain-Source Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =2.0A	-	0.8	1.2	V

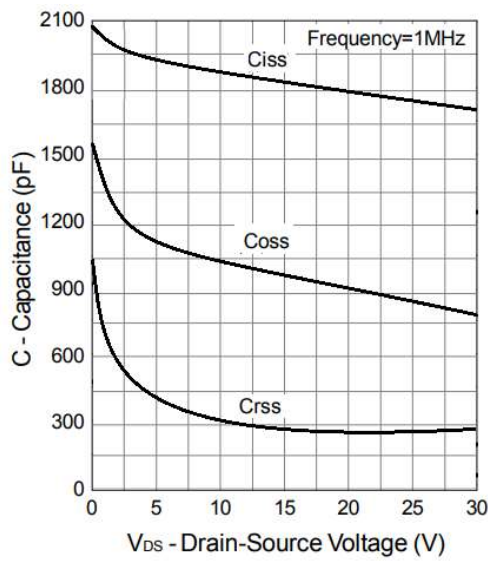
Note: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$



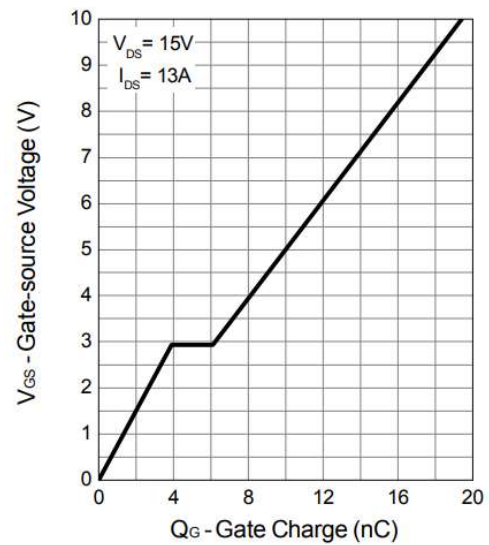
Switching Test Circuit and Switching Waveforms

Typical Characteristics Curves (Ta=25°C, unless otherwise note)

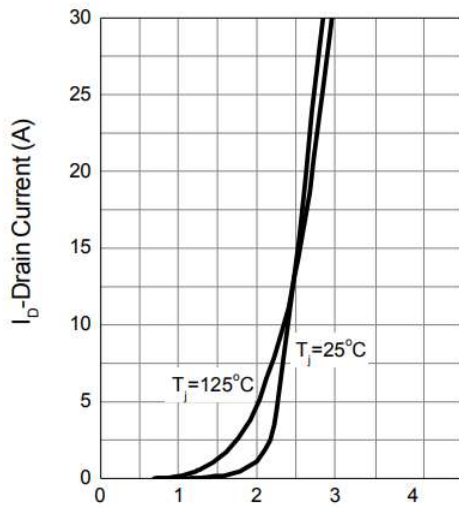




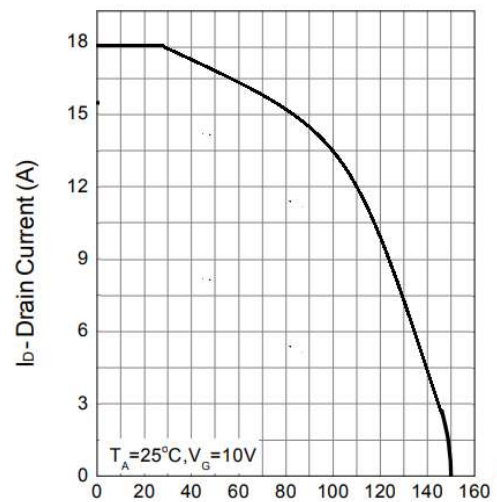
Capacitance



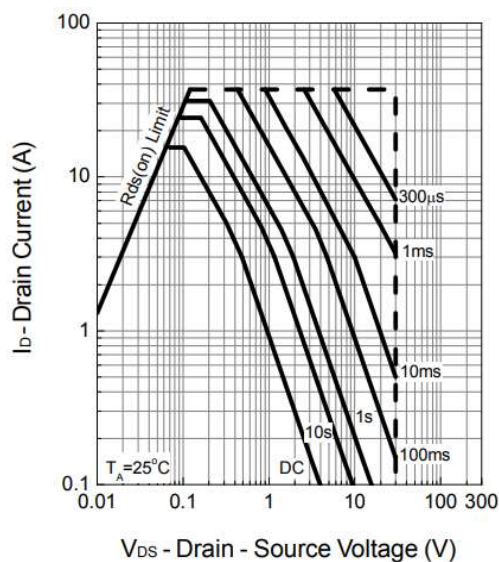
Gate Charge



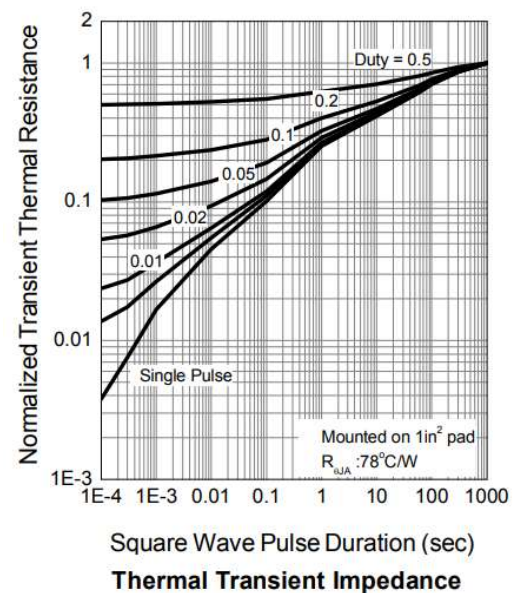
Transfer Characteristics



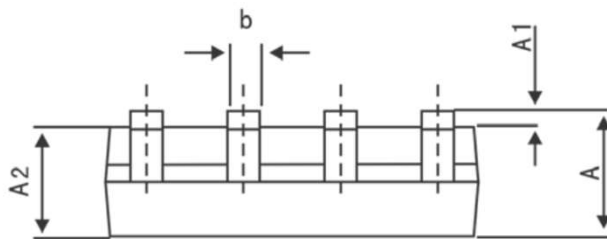
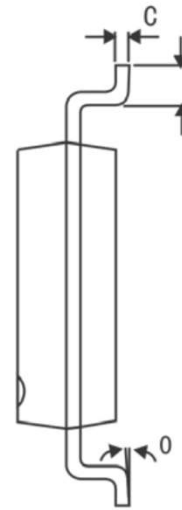
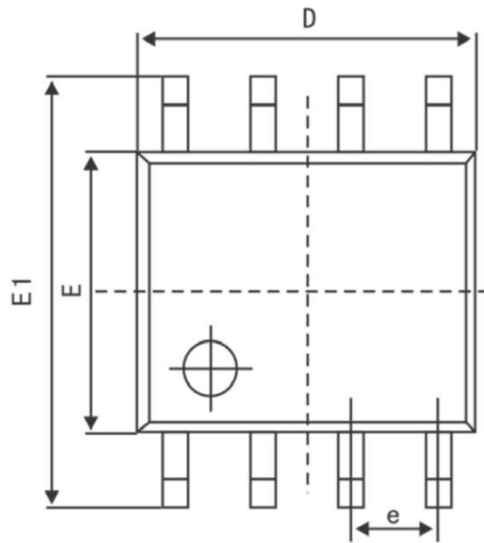
Drain Current



Safe Operation Area



SOP-8L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters (MM)		Dimensions In Inches (MIL)	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°