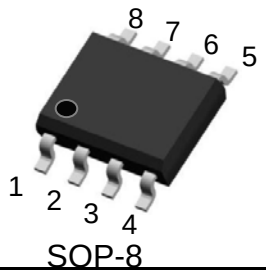
P-Channel Enhancement-Mode MOSFET (-30V, -9.1A)

PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (mΩ)TYP
-30	-9.1	16 @ VGS = -10V ,ID=-9.1A
		21 @ VGS = -4.5V,ID=-6.9A

Features

- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Surface mount Package
- Ordering information： ET4435（Lead（Pb）-free and halogen-free）



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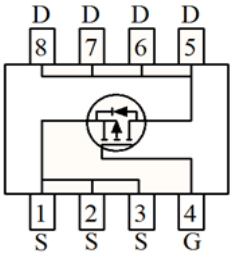
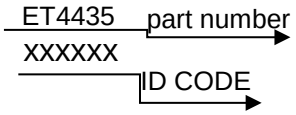


Pin1,2,3: Soure
Pin4: Gate
Pin5,6,7,8:Drain

TOP Marking



Absolute Maximum Ratings (T_A=25°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)	Tc=25°C	-9.1	A
		Tc=70°C	-7.2	
I_{DM}	Drain Current (Pulsed) [a]		-50	A
P_D	Total Power Dissipation @T_A=25°C		3.1	W
I_S	Maximum Diode Forward Current		-20	A
T_j, T_{stg}	Operating Junction and Storage Temperature Range		-55 to +150	°C
R_{QJA}	Thermal Resistance Junction to Ambient (PCB mounted)[b]		40	°C/W

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

b: 1-in^2 2oz Cu PCB board

Electrical Characteristics (T_A=25°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	-1.5	-3	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=-4.5V, I_D=-6.9A	-	21	35	mΩ
		V_{GS}=-10V, I_D=-9.1A	-	16	20	
• Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	-	1600	-	PF
C_{oss}	Output Capacitance		-	350	-	
C_{rss}	Reverse Transfer Capacitance		-	300	-	
• Switching Characteristics						
Q_g	Total Gate Charge	V_{DS}=-15V, I_D=-4.6A, V_{GS}=-5V	-	30	-	nC
Q_{gs}	Gate-Source Charge		-	5.5	-	
Q_{gd}	Gate-Drain Charge		-	8	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=-15V, R_L=5W, I_D=-1A, VGEN=-10V, RG=6W	-	10	-	nS
t_r	Turn-on Rise Time		-	15	-	
$t_{d(off)}$	Turn-off Delay Time		-	110	-	
t_f	Turn-off Fall Time		-	70	-	
• Drain-Source Diode Characteristics						
V_{SD}	Drain-Source Diode Forward	V_{GS}=0V, I_S=-9.1A	-	-	-1.2	V

Note: Pulse Test: Pulse Width≤300us, Duty Cycle≤2%

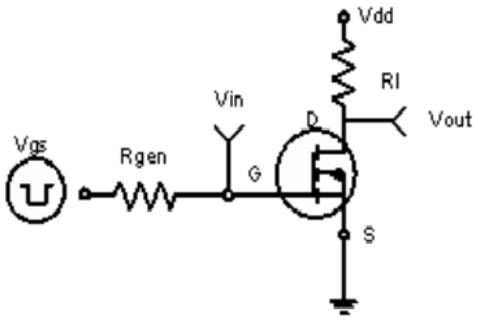


Figure 1:Switching Test Circuit

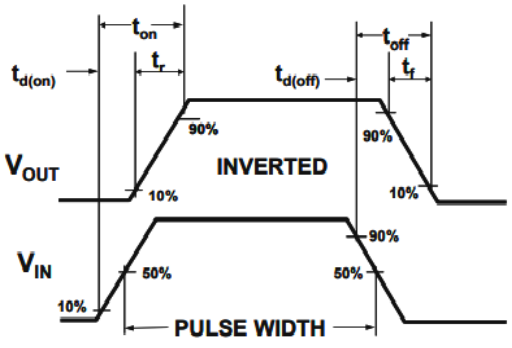


Figure 2:Switching Waveforms

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

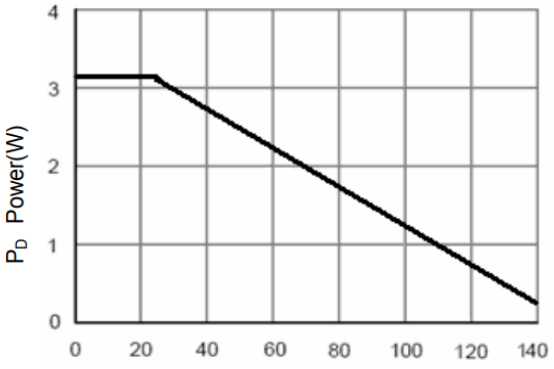


Figure 3 Power Dissipation

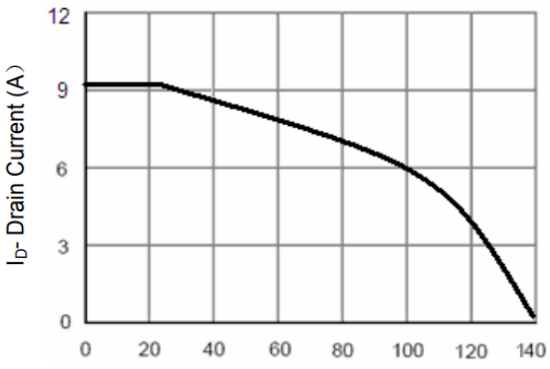


Figure 4 Drain Current

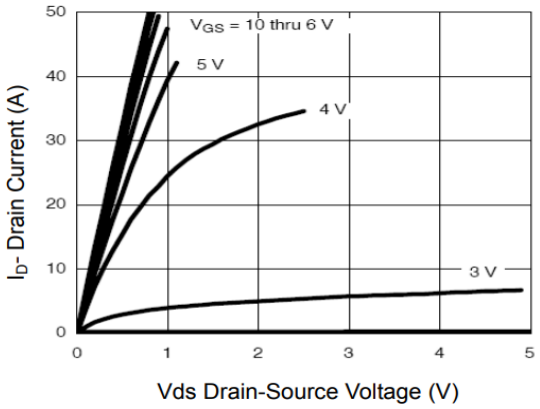


Figure 5 Output Characteristics

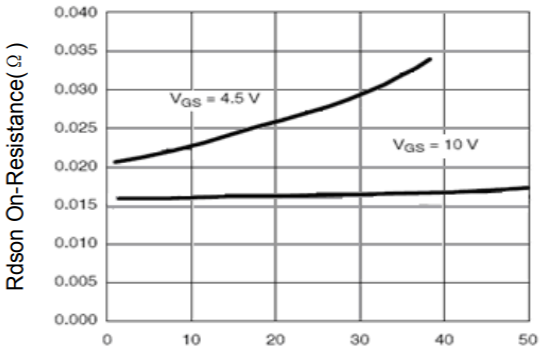


Figure 6 Drain-Source On-Resistance

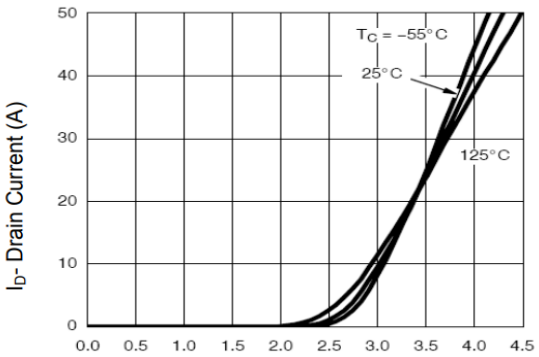


Figure 7 Transfer Characteristics

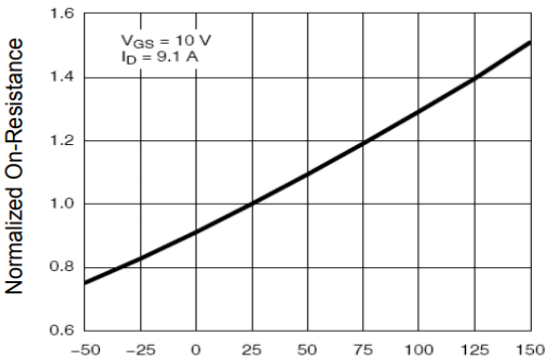


Figure 8 Drain-Source On-Resistance

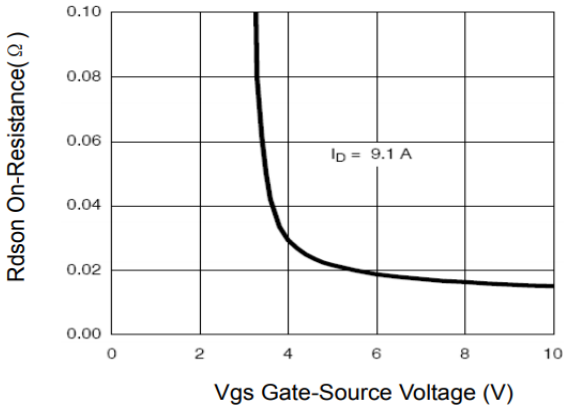


Figure 9 Rdson vs Vgs

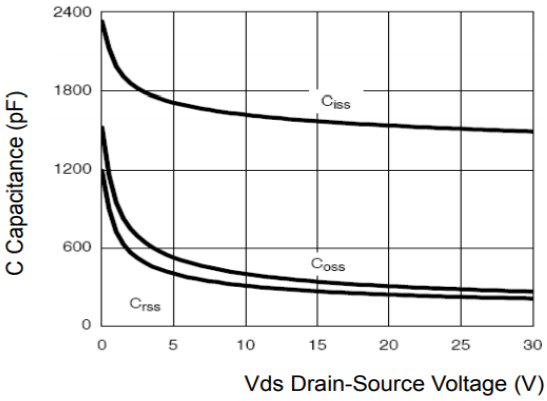


Figure 10 Capacitance vs Vds

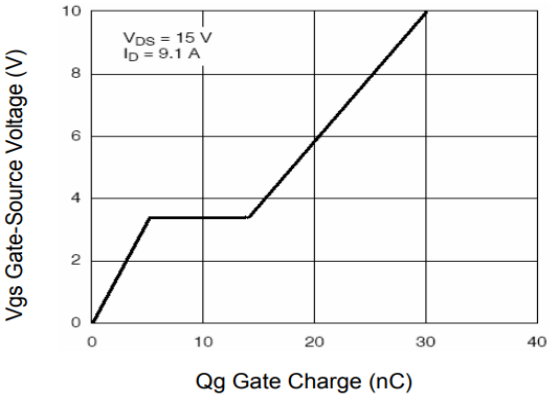


Figure 11 Gate Charge

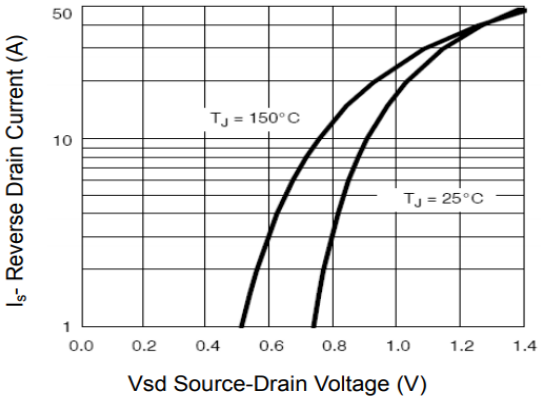


Figure 12 Source- Drain Diode Forward

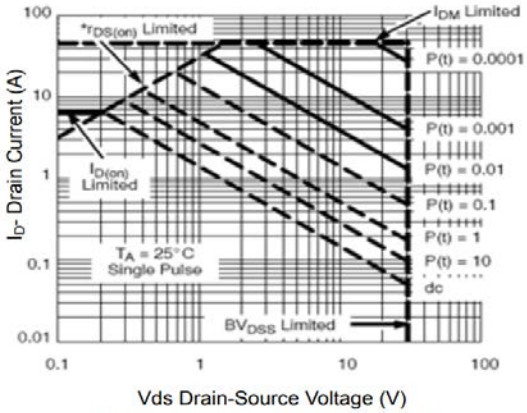


Figure 13 Safe Operation Area

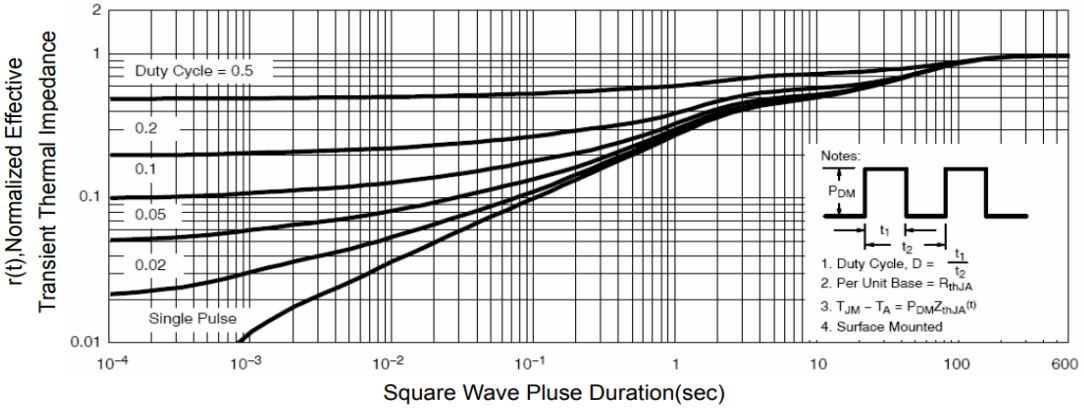
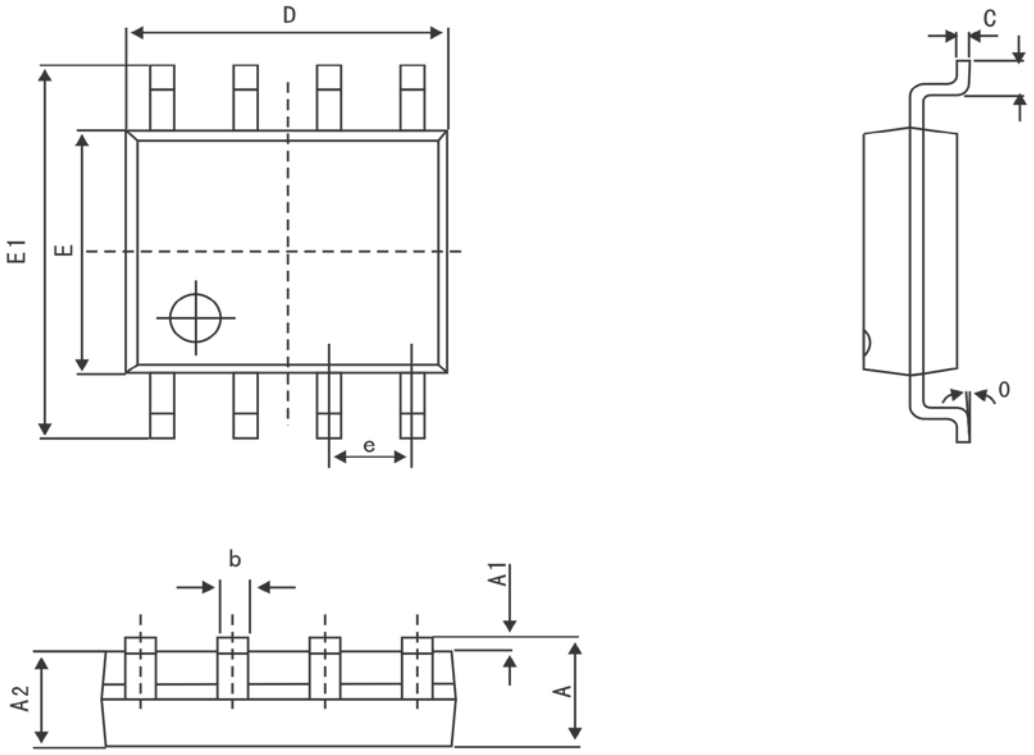


Figure 14 Normalized Maximum Transient Thermal Impedance

SOP-8 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°