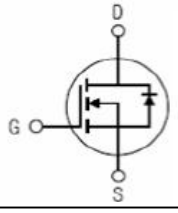
CS630 A8H

V_{DSS}	200	V
I_D	9	A
$P_D(T_C=25℃)$	83	W
$R_{DS(ON)Typ}$	0.23	Ω

TO-220AB

1.Gate 2. Drain 3. Source

Inner Equivalent Principium Chart



General Description:

CS630 A8H, the silicon N-channel Enhanced VDMOSFETs, is obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy. The transistor can be used in various power switching circuit for system miniaturization and higher efficiency. The package form is TO-220AB, which accords with the RoHS standard.

Features:

- **Fast Switching**
- **Low ON Resistance(Rdson≤0.28Ω)**
- **Low Gate Charge (Typical Data:13nC)**
- **Low Reverse transfer capacitances(Typical:10pF)**
- **100% Single Pulse avalanche energy Test**

Applications:

Automotive、DC Motor Control and Class D Amplifier.

Absolute（Tc= 25℃ unless otherwise specified）:

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	200	V
I_D	Continuous Drain Current	9	A
	Continuous Drain Current T_C = 100 °C	5.5	A
I_{DM} [a1]	Pulsed Drain Current	36	A
V_{GS}	Gate-to-Source Voltage	±30	V
E_{AS} [a2]	Single Pulse Avalanche Energy	460	mJ
E_{AR} [a1]	Avalanche Energy ,Repetitive	50	mJ
I_{AR} [a1]	Avalanche Current	3.2	A
dv/dt [a3]	Peak Diode Recovery dv/dt	5.0	V/ns
P_D	Power Dissipation	83	W
	Derating Factor above 25°C	0.67	W/℃
T_J, T_{stg}	Operating Junction and Storage Temperature Range	150，–55 to 150	℃
T_L	Maximum Temperature for Soldering	300	℃

Electrical Characteristics（Tc= 25℃ unless otherwise specified）:

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	200	--	--	V
$\Delta BV_{DSS}/\Delta T_J$	Bvdss Temperature Coefficient	ID=250uA,Reference25℃	--	0.21	--	V/℃
I_{DSS}	Drain to Source Leakage Current	V_{DS} = 200V, V_{GS}= 0V, T_a = 25℃	--	--	1	μA
		V_{DS} =160V, V_{GS}= 0V, T_a = 125℃	--	--	10	
$I_{GSS(F)}$	Gate to Source Forward Leakage	V_{GS} =+30V	--	--	100	nA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	V_{GS} =-30V	--	--	-100	nA

ON Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$R_{DS(ON)}$	Drain-to-Source On-Resistance	V_{GS}=10V,I_D=5.4A	--	0.23	0.28	Ω
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2.0		4.0	V
Pulse width tp≤300μs, δ ≤2%						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g_{fs}	Forward Trans conductance	V_{DS}=25V, I_D =5.4A	--	9.5	--	S
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1.0MHz	--	600	--	pF
C_{oss}	Output Capacitance		--	90	--	
C_{rss}	Reverse Transfer Capacitance		--	10	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	I_D =9A V_{DD} = 100V V_{GS} = 10V R_G =12Ω	--	10	--	ns
tr	Rise Time		--	21	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	24	--	
t_f	Fall Time		--	17	--	
Q_g	Total Gate Charge	I_D =9A V_{DD} =100V V_{GS} = 10V	--	13		nC
Q_{gs}	Gate to Source Charge		--	4	--	
Q_{gd}	Gate to Drain (“Miller”)Charge		--	4.5	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)		--	--	9	A
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	36	A
V_{SD}	Diode Forward Voltage	I_S=9A,V_{GS}=0V	--	--	1.5	V
trr	Reverse Recovery Time	I_S=9A,T_j = 25° C	--	120		ns
Qrr	Reverse Recovery Charge	dI_F/dt=100A/us, V_{GS}=0V	--	495		nC
Pulse width tp≤300μs, δ ≤2%						

Symbol	Parameter	Typ.	Units
$R_{\theta JC}$	Junction-to-Case	1.51	℃/W
$R_{\theta JA}$	Junction-to-Ambient	62.5	℃/W

[a1]: Repetitive rating; pulse width limited by maximum junction temperature
[a2]: L=10.0mH, I_D=9.6A, Start T_J=25℃
[a3]: I_{SD} =9A,di/dt ≤100A/us,V_{DD}≤$BV_{DS,}$ Start T_J=25℃