



# YJ08G10A

## N Channel Enhancement Mode Field Effect Transistor

### Product Summary

$V_{DS}$	110V
$I_D$	3A
$R_{DS(on)}$ (at $V_{GS}=10V$ )	140mΩ
$R_{DS(on)}$ (at $V_{GS}=4.5V$ )	250mΩ

### General Description

Split Gate Trench MOSFET technology  
 Excellent package for heat dissipation  
 High density cell design for low  $R_{DS(on)}$

### Applications

DC-DC Converters  
 Power management functions

### Absolute Maximum Ratings ( $T_A=25$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain source Voltage	$V_{DS}$	110	V	
Gate source Voltage	$V_{GS}$	20	V	
Drain Current	$I_D$	$T_A=25$	3	A
		$T_A=70$	24	
Pulsed Drain Current <sup>A</sup>	$I_{DM}$	12	A	
Avalanche energy <sup>B</sup>	$E_{AS}$	8	mJ	
Total Power Dissipation <sup>C</sup>	$P_D$	$T_A=25$	15	W
		$T_A=70$	10	

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## Electrical Characteristics ( $T_j=25$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	$BV_{DS}$	$V_{GS}=0V, I_D=250\mu A$	110			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=110V, V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=20V, V_{DS}=0V$			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.8	2.8	V
Static Drain-Source On Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=3A$		110	140	m
		$V_{GS}=4.5V, I_D=2A$		135	250	m
Diode Forward Voltage	$V_{SD}$	$I_S=3A, V_{GS}=0V$			1.3	V
Maximum Body Diode Continuous Current	$I_S$				3	A
Gate resistance	$R_G$	$f=1MHz, Q_{pd} \text{ drain}$		8		
<b>Dynamic Parameters</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=50V, V_{GS}=0V, f=100kHz$		206		$\mu F$
Output Capacitance	$C_{oss}$			289		
Reverse Transfer Capacitance	$C_{rss}$			14		
<b>Switching Parameters</b>						
Total Gate Charge	$Q_g$	$V_{GS}=10V, V_{DS}=50V, I_D=3A$		43		nC
Gate-Source Charge	$Q_{gs}$			15		
Gate-Drain Charge	$Q_{gd}$			11		
Reverse Recovery Charge	$Q_r$	$I_D=3A, di/dt=100A/\mu s$		394		nC
Reverse Recovery Time	$t_r$			321		
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=50V, I_D=3A$ $R_{GEN}=2$		147		ns
Turn-on Rise Time	$t_r$			35		
Turn-off Delay Time	$t_{d(off)}$			209		
Turn-off Fall Time	$t_f$			27		

A Repetitive rating pulse width limited by max junction temperature.

B  $V_{DS}=50V, R_G=25, L=0.5mH$

C  $P_{d}$  is based on max junction temperature, using 10 $\mu s$  junction to ambient thermal resistance.

D The value of  $R_{JA}$  is measured with the device mounted on a FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25$  C. The value in any given application depends on the assembly process and board design.



### Typical Performance Characteristics

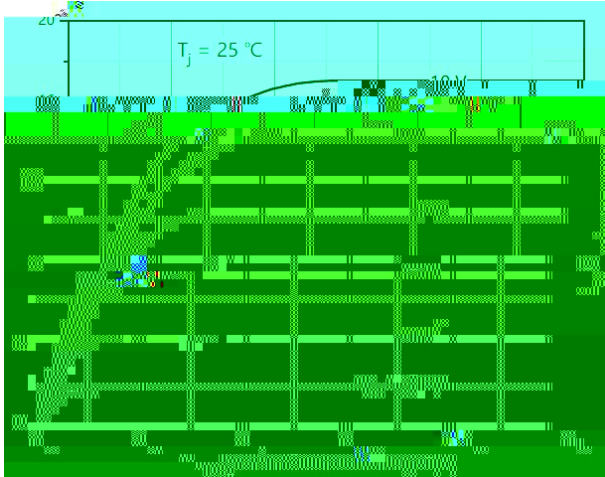


Figure1. Output Characteristics

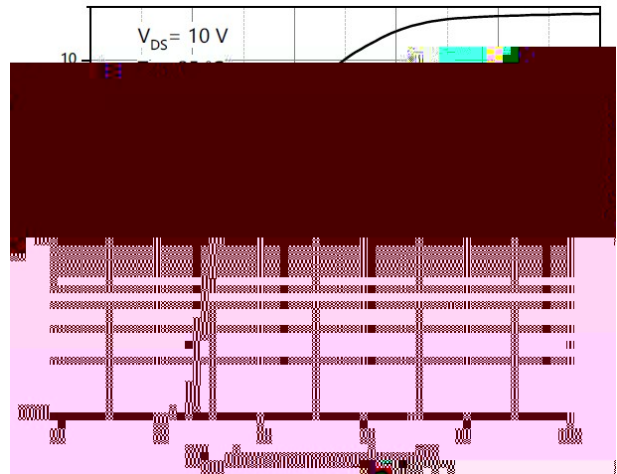


Figure2 Transfer Characteristics

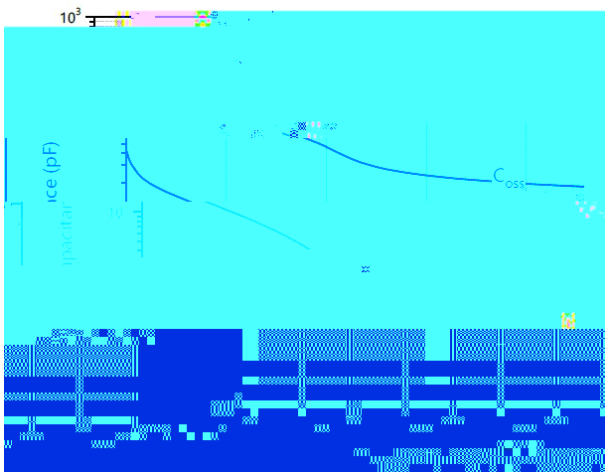


Figure3 Capacitance Characteristics

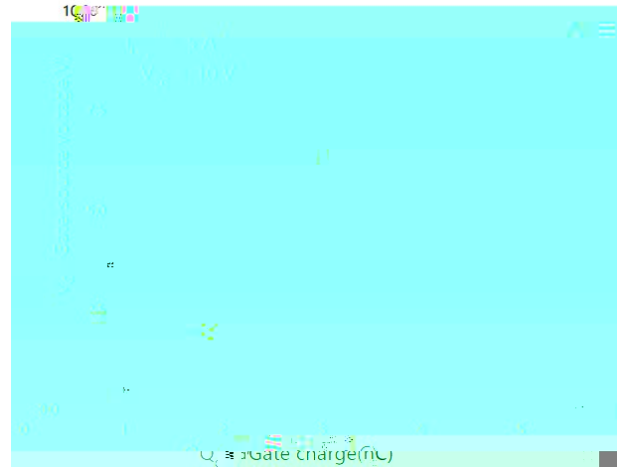


Figure4 Gate Charge

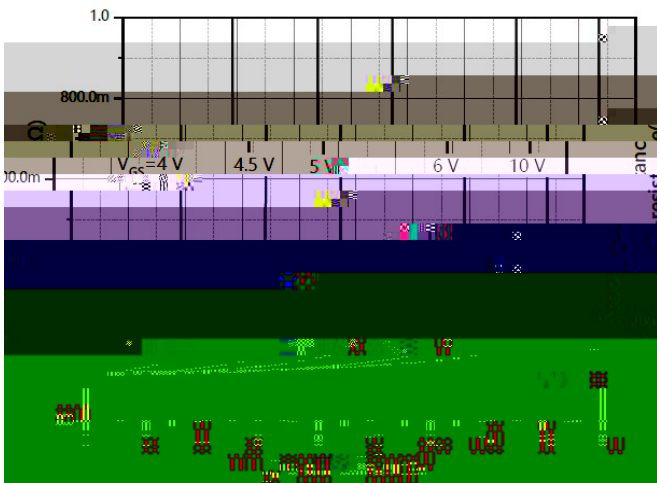


Figure5 : On Resistance vs. Drain Current and Gate Voltage

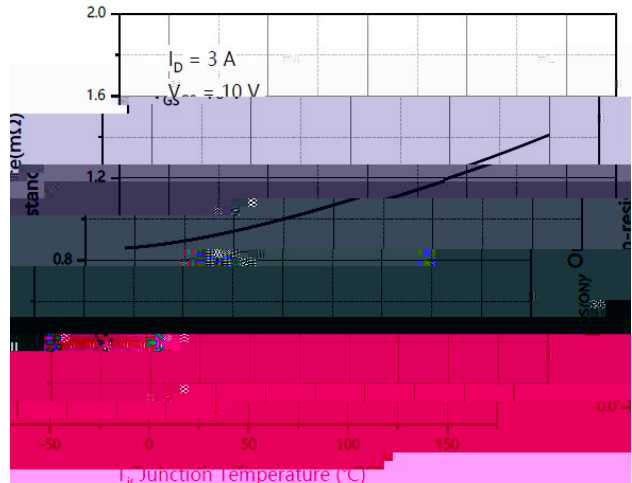


Figure6 Normalized On Resistance

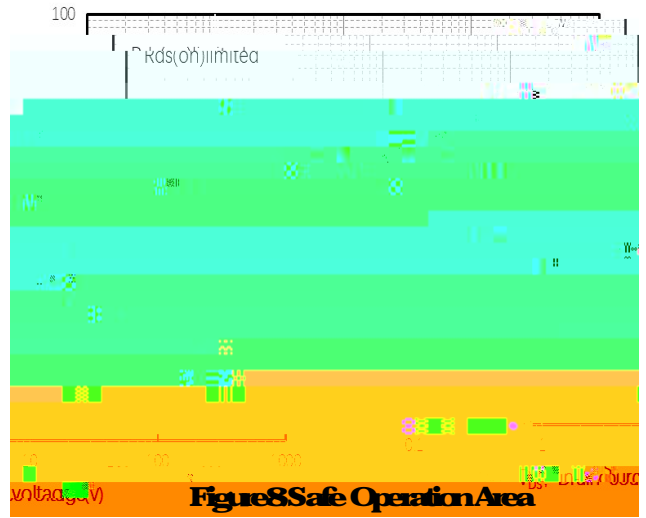


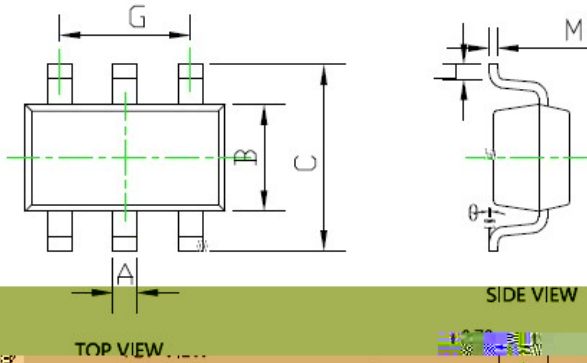
Figure 7. Drain current

Figure 8. Safe Operation Area

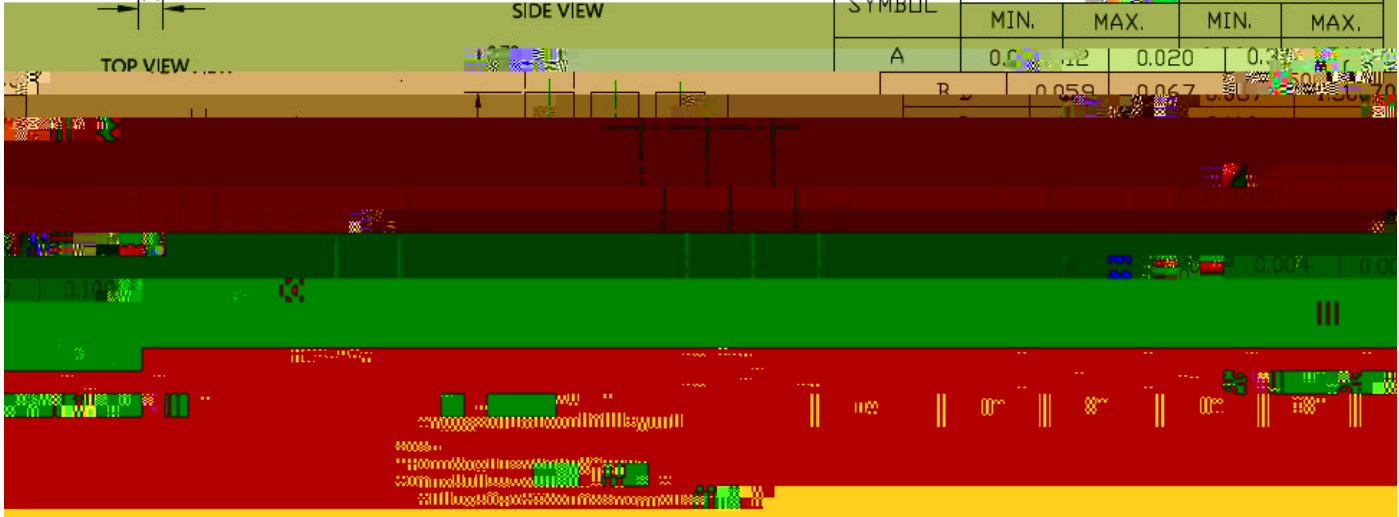
Figure 9. Normalized Maximum Transient thermal impedance



**SOF-236L Package information**



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.012	0.020	0.305	0.508
B	0.059	0.067	1.500	1.700





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