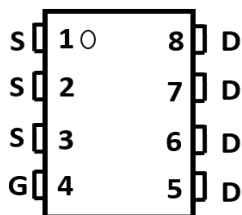
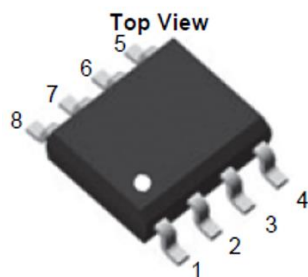
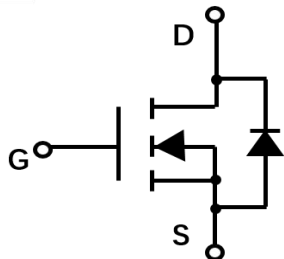


N-Channel Enhancement Mode Field Effect Transistor



SOP-8



Product Summary

- V_{DS} 40 V
- I_D 10 A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <15 mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <24 mohm

General Description

- Trench Power LV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- High current load applications
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

■ Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	40	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25^\circ\text{C}$	I_D	10	A
	$T_A=100^\circ\text{C}$		7.0	
Pulsed Drain Current ^A		I_{DM}	50	A
Single Pulse Avalanche Energy ^B		E_{AS}	70	mJ
Total Power Dissipation	$T_A=25^\circ\text{C}$	P_D	3.0	W
	$T_A=100^\circ\text{C}$		1.2	
Thermal Resistance Junction-to-Case ^C		$R_{\theta JC}$	30	$^\circ\text{C/W}$
		$R_{\theta JA}$	41.5	
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ\text{C}$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJS10N04A	F2	Q10N04	4000	8000	64000	13" reel



YJS10N04A

■ Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	40			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V,V _{GS} =0V			1	μA
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 =250μA	1.0	1.5	2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D =8.0A		12.5	15	mΩ
		V _{GS} = 4.5V, I _D =4.0A		15.5	24	
Diode Forward Voltage	V _{SD}	I _S =10A,V _{GS} =0V		0.85	1.2	V
Maximum Body-Diode Continuous Current	I _S				10	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =20V,V _{GS} =0V,f=1MHZ		750		pF
Output Capacitance	C _{oss}			150		
Reverse Transfer Capacitance	C _{rss}			80		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V,V _{DS} =20V,I _D =10A		15		nC
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			2.5		
Reverse Recovery Charge	Q _{rr}	I _F =10A, di/dt=100A/us		26		ns
Reverse Recovery Time	t _{rr}			29		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V,V _{DD} =20V, I _D =2A,R _L =1Ω R _{GEN} =3Ω		6		
Turn-on Rise Time	t _r			17.5		
Turn-off Delay Time	t _{D(off)}			31		
Turn-off fall Time	t _f			17		

A. Repetitive Rating: Pulse width limited by maximum junction temperature.

B. T_J=25°C, V_{DD}=20V, V_G=10V, L=0.5mH, R_g=25 Ω.

C. Surface Mounted on FR4 Board, t ≤ 10 sec.



■ Typical Performance Characteristics

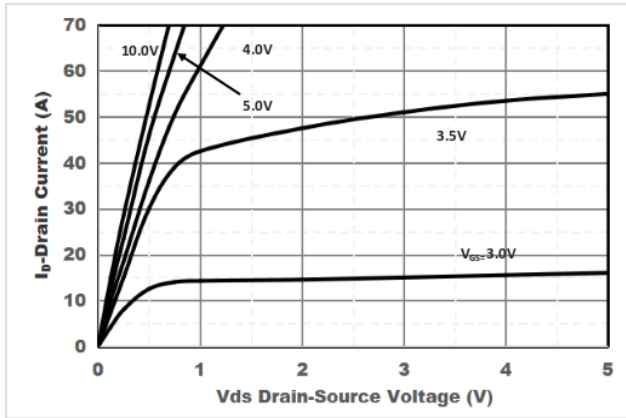


Figure1. Output Characteristics

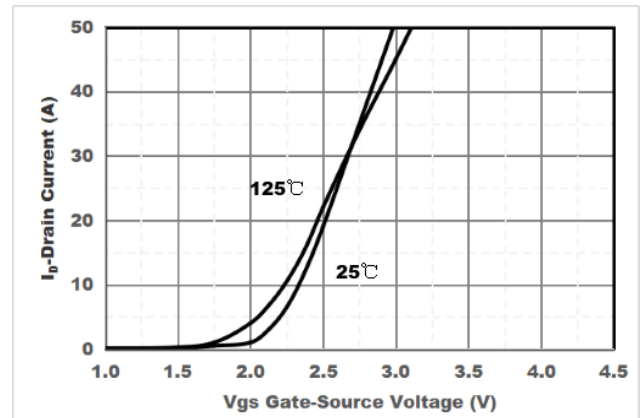


Figure2. Transfer Characteristics

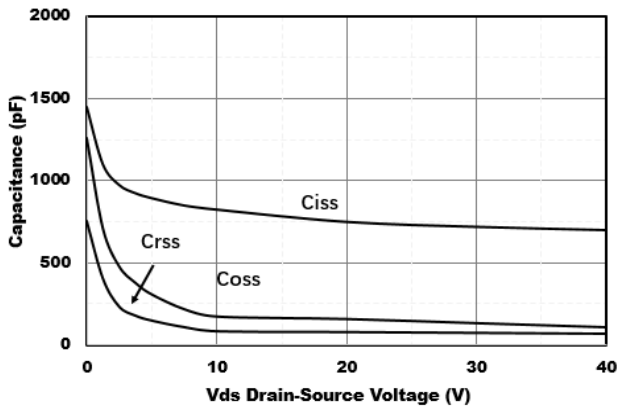


Figure3. Capacitance Characteristics

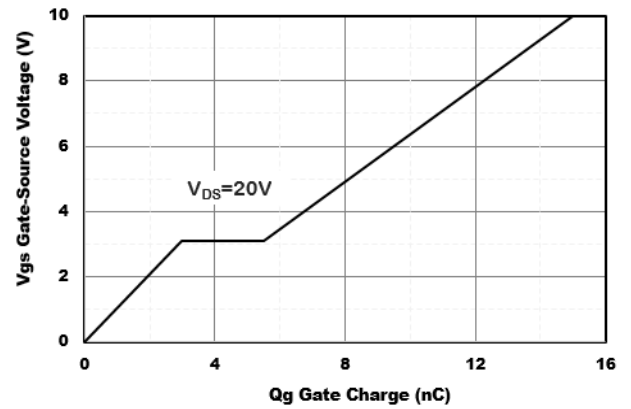


Figure4. Gate Charge

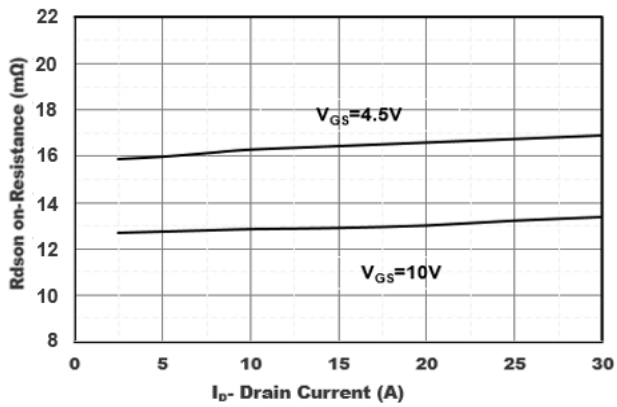


Figure5. Drain-Source on Resistance

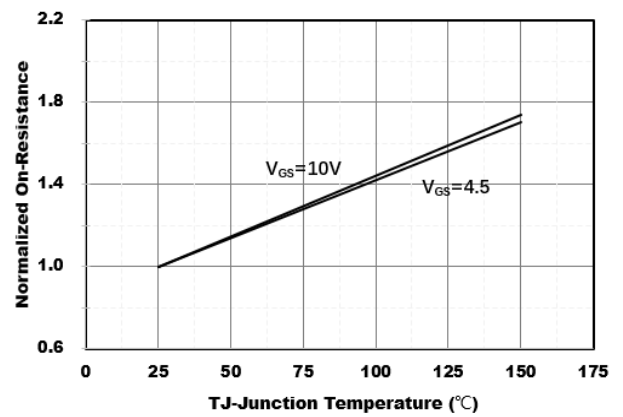


Figure6. Drain-Source on Resistance

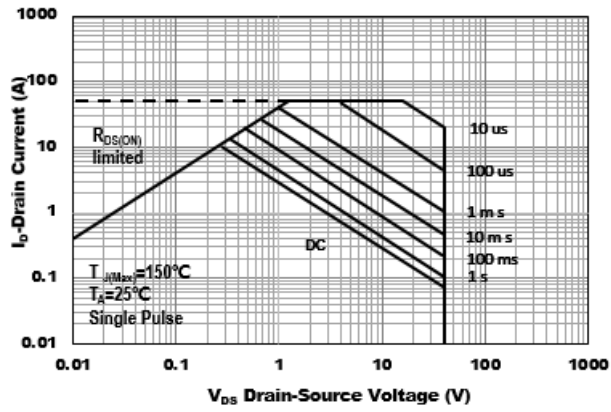


Figure7. Safe Operation Area

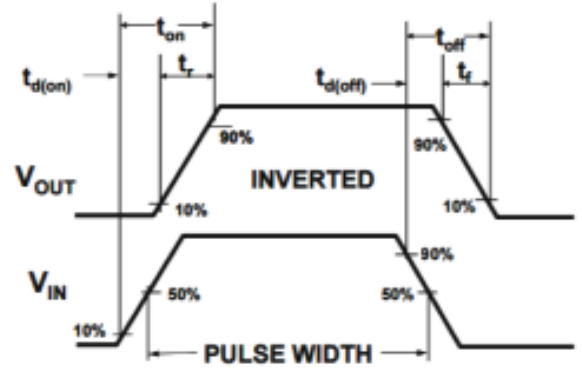
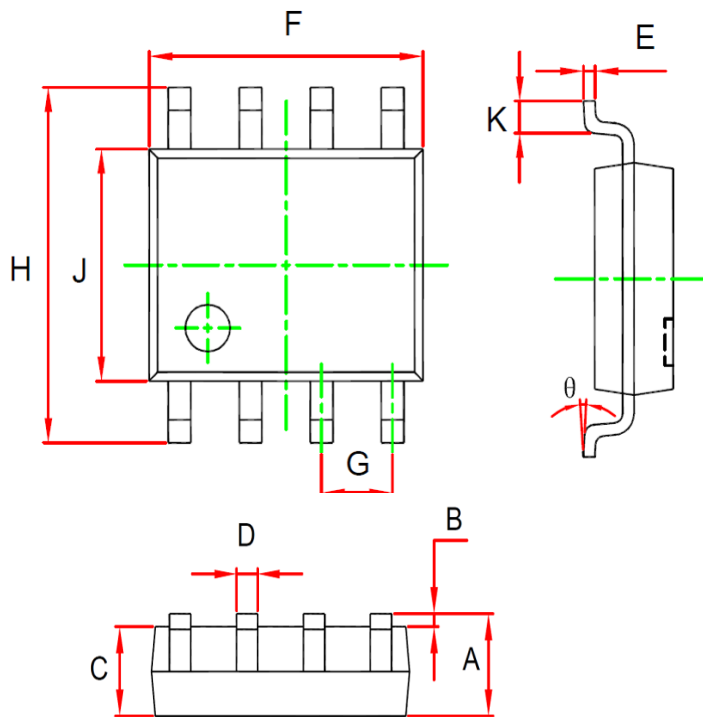


Figure8. Switching wave



YJS10N04A

■SOP-8 Package information



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.350	1.750	
B	0.004	0.010	0.100	0.250	
C	0.053	0.061	1.350	1.550	
D	0.013	0.020	0.330	0.510	
E	0.007	0.010	0.170	0.250	
F	0.189	0.197	4.800	5.000	
G	0.050 (BSC)		1.270 (BSC)		
H	0.228	0.244	5.800	6.200	
J	0.150	0.157	3.800	4.000	
K	0.016	0.050	0.400	1.270	
θ	0°	8°	0°	8°	



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