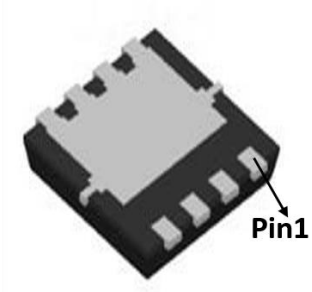
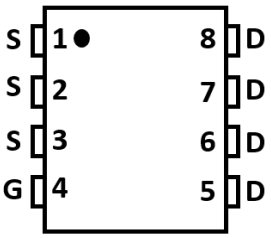
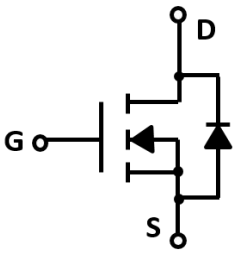
N-Channel Enhancement Mode Field Effect Transistor





DFN3.3X3.3



Product Summary

- V_{DS} 40V
- I_D 35A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜8.0 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜10 mohm
- 100% UIS Tested
- 100% ▽V_{DS} Tested

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℃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℃	I_D	35	A
	T_A=100℃		23	
Pulsed Drain Current [A]		I_{DM}	120	A
Single Pulse Avalanche Energy [B]		E_{AS}	70	mJ
Total Power Dissipation	T_C=25℃	P_D	40	W
	T_A=25℃		4.1	
Thermal Resistance Junction-to-Case		$R_{\theta JC}$	3.6	℃/ W
		$R_{\theta JA}$	30	
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJQ35N04A	F2	35N04	3000	6000	60000	13“ reel

■ Electrical Characteristics (T_J=25℃ 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	0.7	1.3	2.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=20A		6.5	8.0	mΩ
		V_{GS}= 4.5V, I_D=10A		8.0	10.0	
Diode Forward Voltage	V_{SD}	I_S=10A,V_{GS}=0V		0.7	1.2	V
Maximum Body-Diode Continuous Current	I_S				35	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V,f=1MHZ		1500		pF
Output Capacitance	C_{oss}			224		
Reverse Transfer Capacitance	C_{rss}			152		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=20V,I_D=20A		29		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			7		
Reverse Recovery Chrage	Q_{rr}	I_F=20A, di/dt=100A/us		26		
Reverse Recovery Time	t_{rr}			29		ns
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. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.
B. T_j=25℃, V_{DD}=20V, V_G=10V, L=0.5mH, R_g=25Ω

■ Typical Performance Characteristics

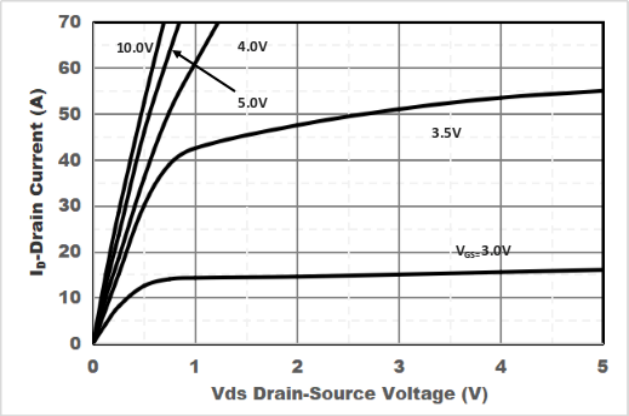


Figure1. Output Characteristics

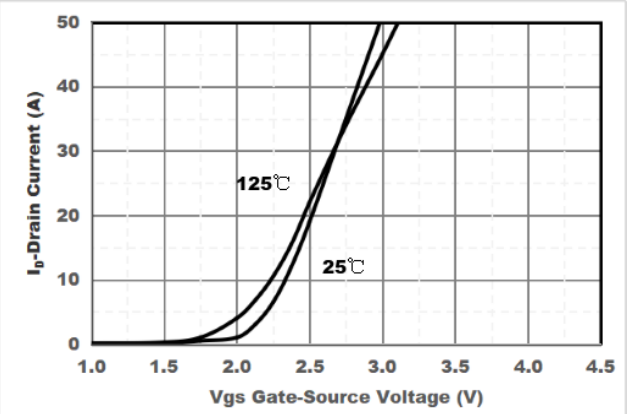


Figure2. Transfer Characteristics

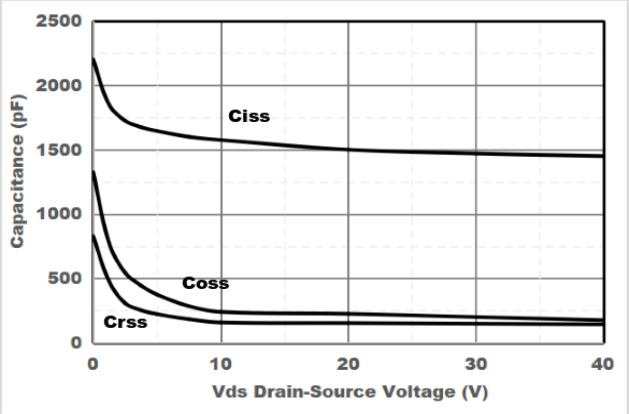


Figure3. Capacitance Characteristics

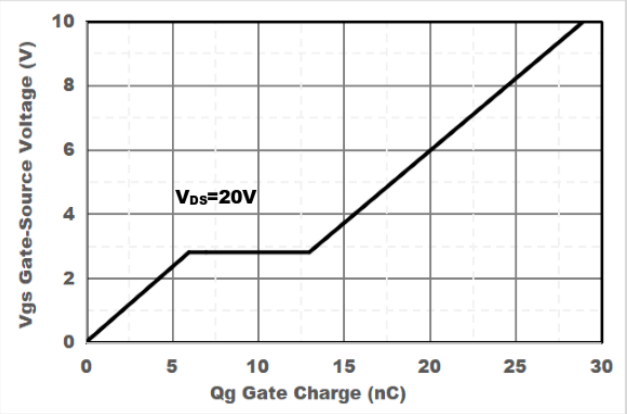


Figure4. Gate Charge

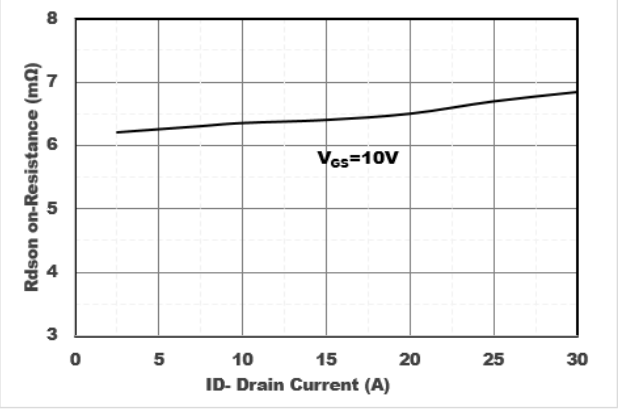


Figure5. Drain-Source on Resistance

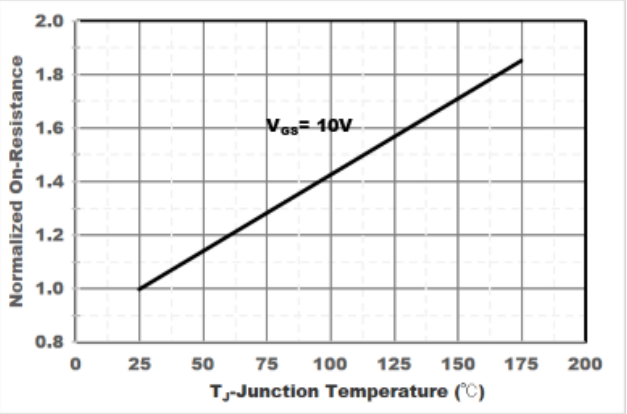


Figure6. Drain-Source on Resistance

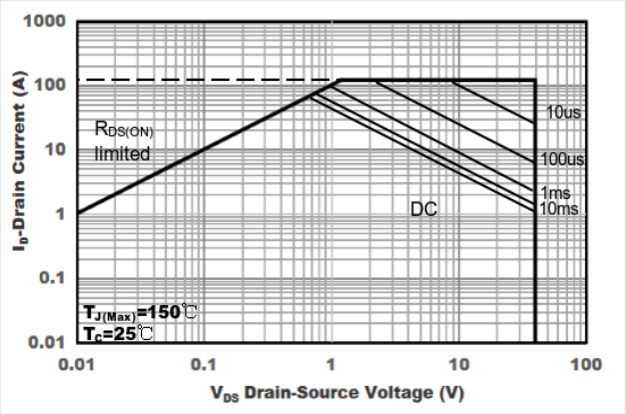


Figure7. Safe Operation Area

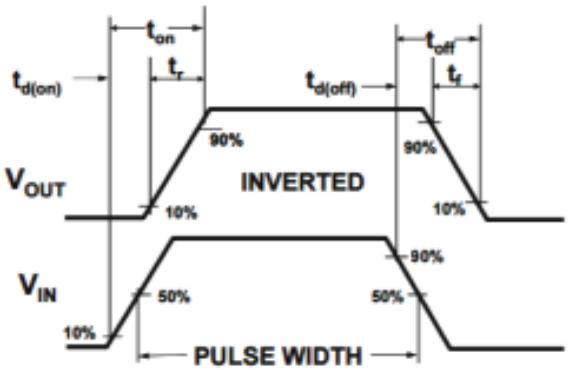
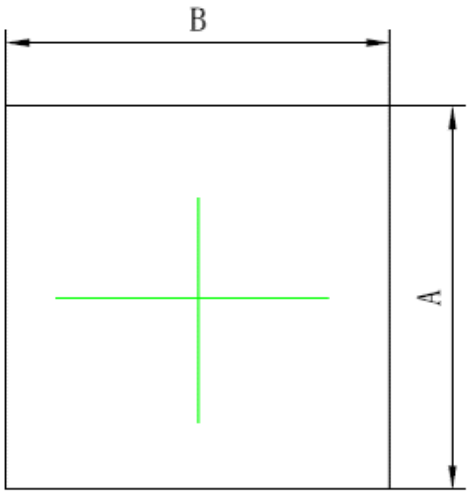
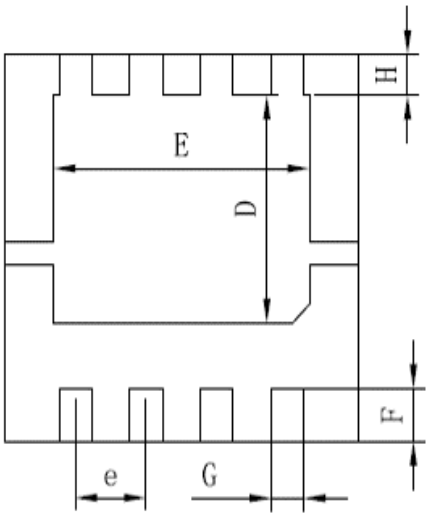
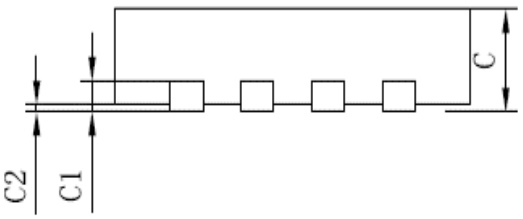


Figure8. Switching wave

■ DFN3.3X3.3 Package information







A	B	C	C1
3.25±0.05	3.25±0.05	0.8±0.05	0.2±0.02
C2	D	E	F
0.05Max	1.9±0.1	2.35±0.15	0.45±0.05
G	H	e	
0.3±0.05	0.35±0.05	0.65±0.05	
单位：mm			

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