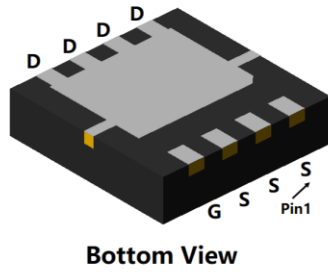
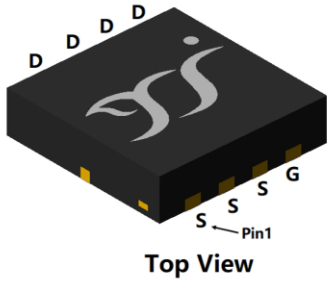
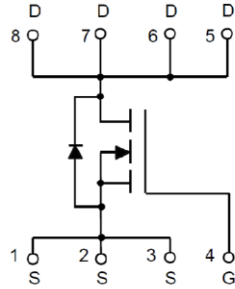


N-Channel Enhancement Mode Field Effect Transistor



DFN3333-8L



Product Summary

V_{DS}	100V
I_D	40A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	< 18.5 mohm
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	< 22.5 mohm
100% EAS Tested	

General Description

Split gate trench MOSFET technology
 Excellent package for heat dissipation
 High density cell design for low $R_{DS(ON)}$
 Moisture Sensitivity Level 3
 Epoxy Meets UL 94 V-0 Flammability Rating
 Halogen Free

Applications

Consumer electronic power supply
 Motor control
 Synchronous-rectification
 Isolated DC/DC converter
 Invertors

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	100	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25^\circ C$	I_D	8	A
	$T_A=100^\circ C$		5	
	$T_C=25^\circ C$		40	
	$T_C=100^\circ C$		25.3	
Pulsed Drain Current ^A		I_{DM}	160	A
Avalanche energy ^B		EAS	81	mJ
Total Power Dissipation ^C	$T_A=25^\circ C$	P_D	2	W
	$T_A=100^\circ C$		0.9	
	$T_C=25^\circ C$		43	
	$T_C=100^\circ C$		17.2	
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ C$

Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^D	$t \leq 10S$	R	20	25	$^\circ C/W$
Thermal Resistance Junction-to-Ambient ^D	Steady-State		45	55	
Thermal Resistance Junction-to-Case	Steady-State	R	2.4	2.9	

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJQ40G10A	F1	Q40G10A	5000	10000	100000	13 reel



YJQ40G10A

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 =250	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	
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	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		15	18.5	m
		V _{GS} =4.5V, I _D =20A		18	22.5	
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V			1.3	V
Maximum Body-Diode Continuous Current	I _S				40	A
Gate resistance	R _G	f=1MHz, Open drain		1		
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f=1MHZ		1051		pF
Output Capacitance	C _{oss}			399		
Reverse Transfer Capacitance	C _{rss}			18		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =50V, I _D =25A		16		nC
Gate-Source Charge	Q _{gs}			5.6		
Gate-Drain Charge	Q _{gd}			2.4		
Reverse Recovery Charge	Q _{rr}	I _r =20A, di/dt=100A/us		42		ns
Reverse Recovery Time	t _{rr}			39.8		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DD} =50V, I _{DS} =25A R _{GEN} =2.2		39.2		ns
Turn-on Rise Time	t _r			11		
Turn-off Delay Time	t _{D(off)}			53.2		
Turn-off fall Time	t _f			15.8		

A. Repetitive rating; pulse width limited by max. junction temperature.

B. V_{DD}=50V, R_G 2mH, I_{AS}=9A

C. Pd is based on max. junction temperature, using junction-case thermal resistance.

D. -4 board with 2oz. Copper, in a still air environment with T_A =25° C. The temperature of 150° C. The value in any given

application depends on the user's specific board design.



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Typical Performance Characteristics

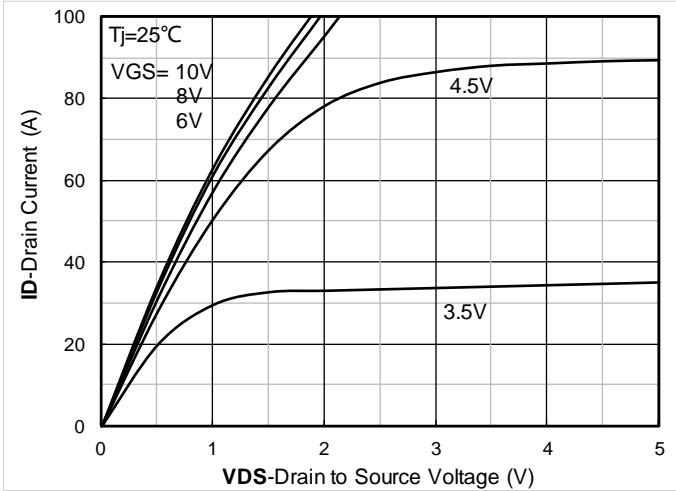


Figure1. Output Characteristics

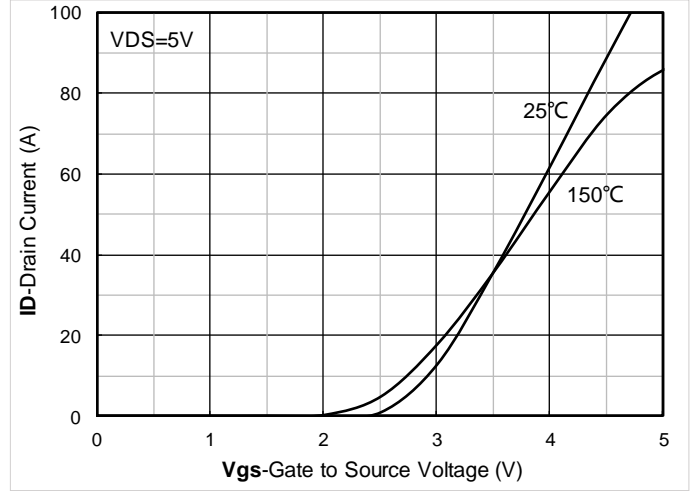


Figure2. Transfer Characteristics

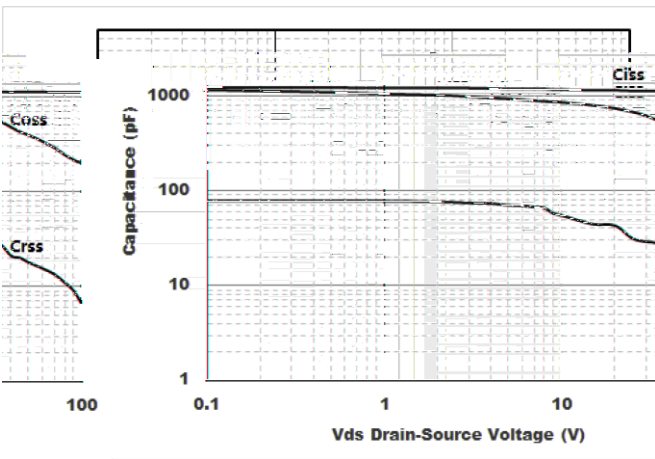


Figure3. Capacitance Characteristics

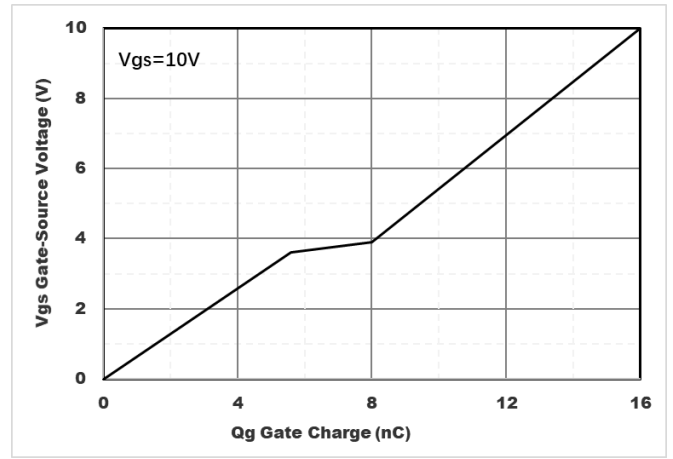


Figure4. Gate Charge

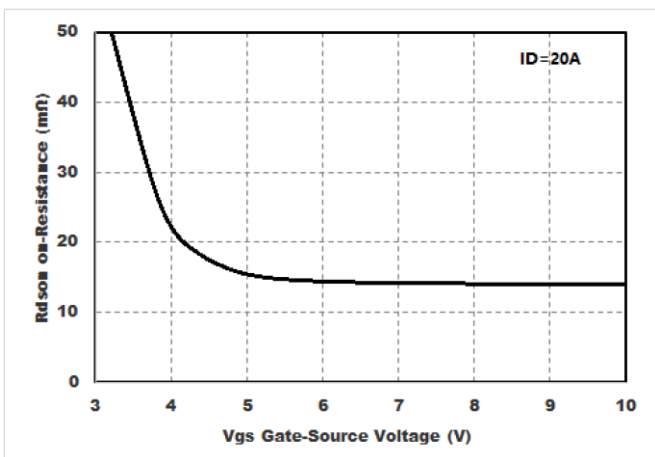


Figure5. : On-Resistance vs. Gate to Source Voltage

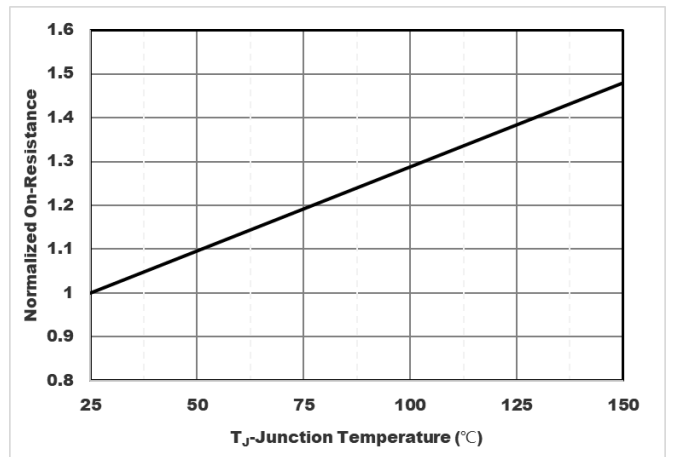


Figure6. Normalized On-Resistance



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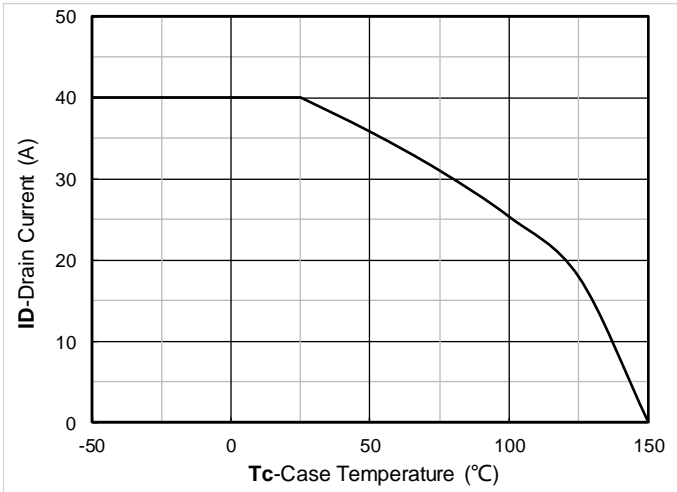


Figure7. Drain current

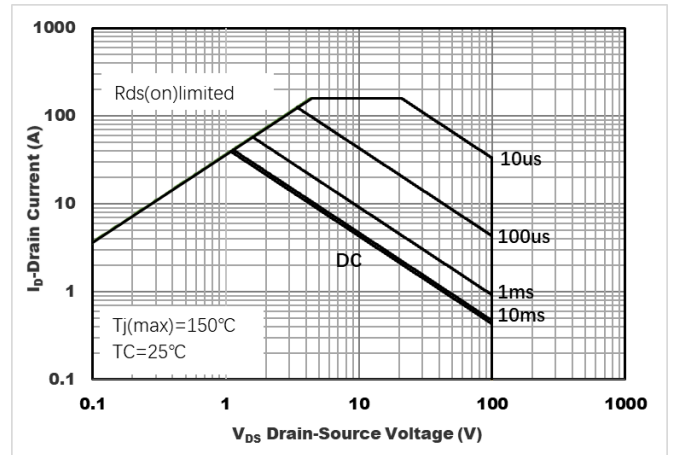


Figure8.Safe Operation Area

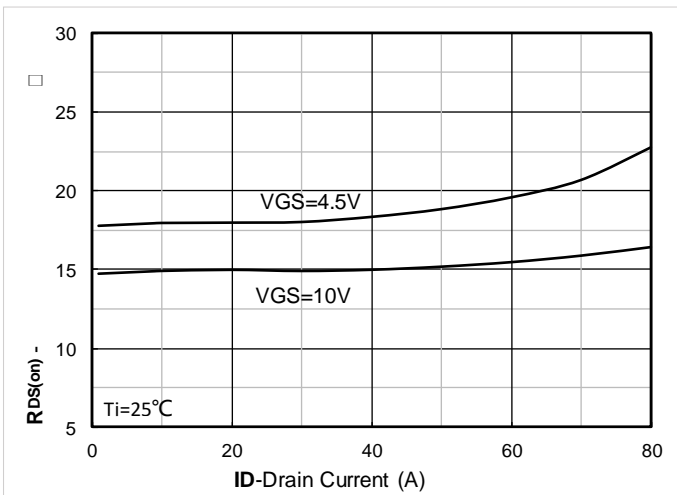


Figure 9. RDS(on) VS Drain Current

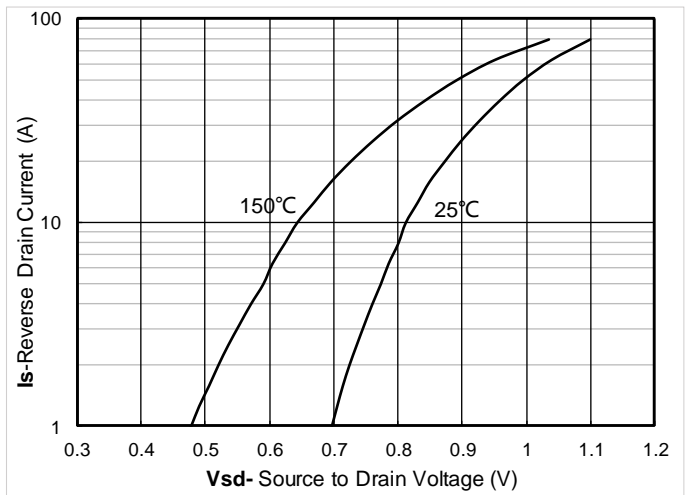


Figure 10. Forward characteristics of reverse diode

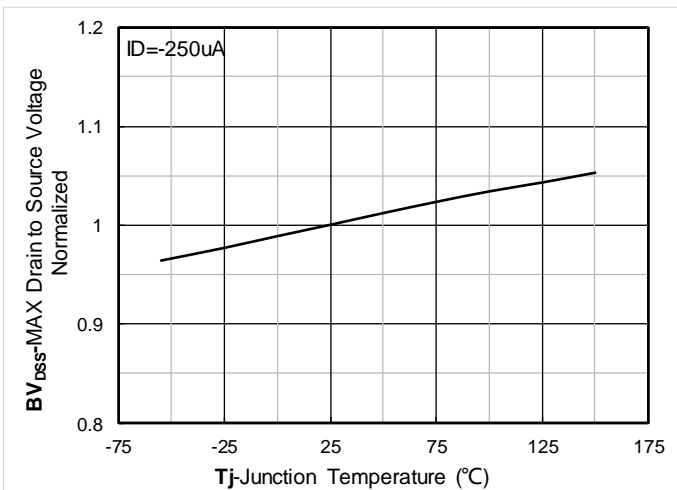


Figure 11. Normalized breakdown voltage

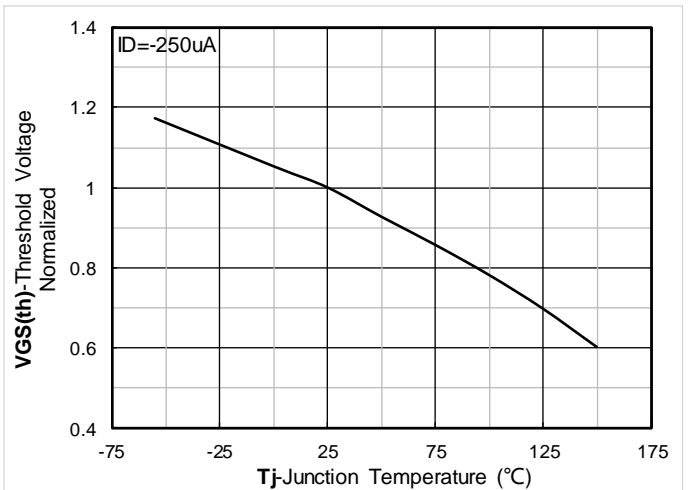


Figure 12. Normalized Threshold voltage



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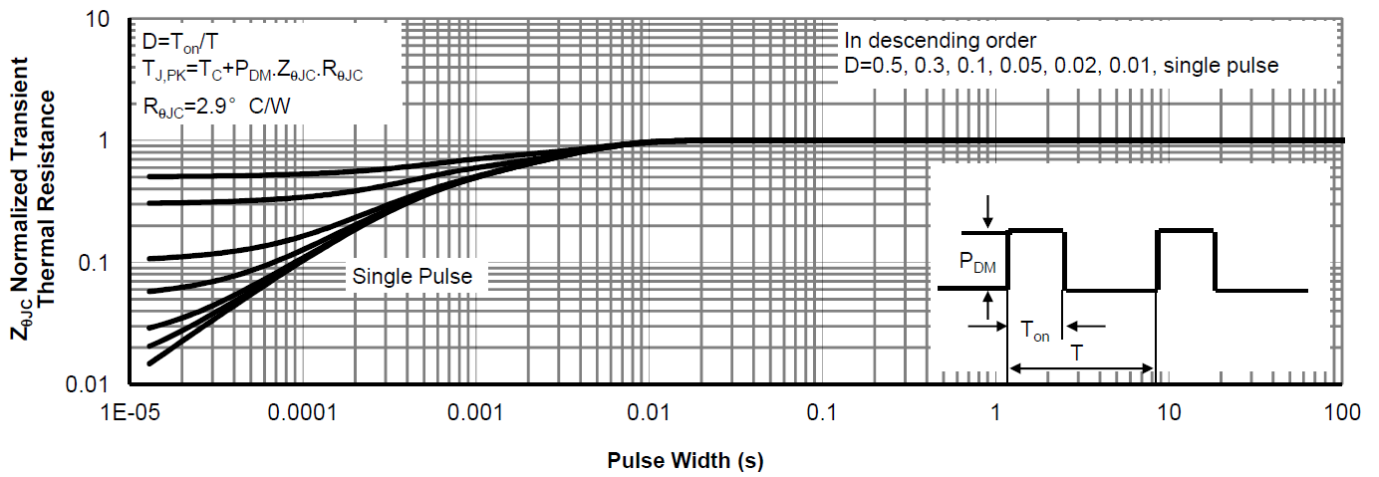
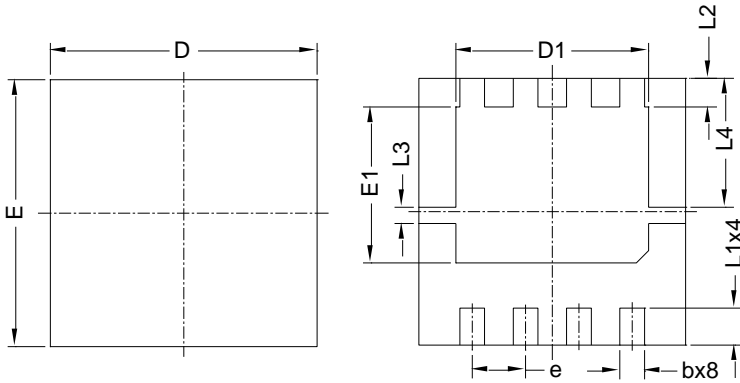


Figure 13. Normalized Maximum Transient thermal impedance



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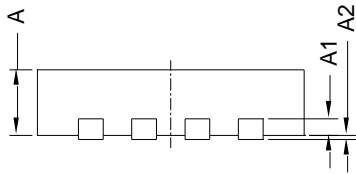
DFN3333-8L-A Package information



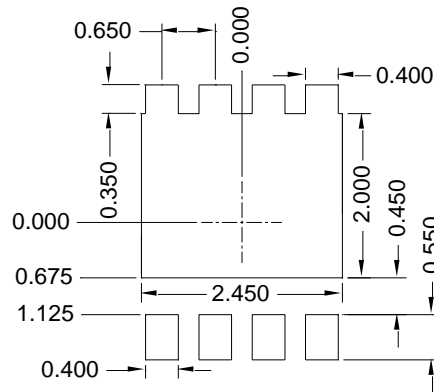
Top View
正面视图

Bottom View
背面视图

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	3.15	3.25	3.35
E	3.15	3.25	3.35
A	0.70	0.80	0.90
A1	0.20 BSC		
A2			0.10
D1	2.20	2.35	2.50
E1	1.80	1.90	2.00
L1	0.35	0.45	0.55
L2	0.35 BSC		
L3	0.20 BSC		
L4	1.57 BSC		
b	0.20	0.30	0.40
e	0.65 BSC		



Side View
侧面视图



Suggested Solder Pad Layout
Top View

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.10\text{mm}$.
3. The pad layout is for reference purposes only.



YJQ40G10A

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