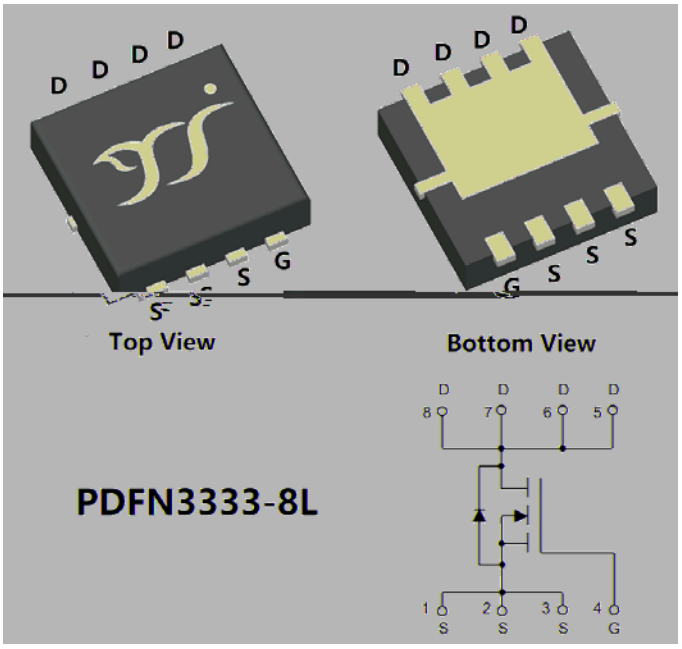
RoHS
COMPLIANT



- V_{DS} 40V
- I_D 50A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜6.9mΩ
- 100% EAS Tested
- 100% ▽V_{DS} Tested

- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free
- Part no. with suffix "Q" means AEC-Q101 qualified

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- 12V Automotive systems

■ (T_J=25℃ unless otherwise noted)

Drain-source Voltage			V_{DS}	40	V
Gate-source Voltage			V_{GS}	±20	V
Continuous Drain Current (Note 1,2)	Steady-State	T_A=25 , V_{GS}= 10V	I_D	14	A
		T_A=100 , V_{GS}= 10V		9.9	
Continuous Drain Current (Note 1,3)	Steady-State	T_C=25 , V_{GS}= 10V		50	
		T_C =100 , V_{GS}= 10V		35	
Pulsed Drain Current	T_C=25℃, t_p=100μs		I_{DM}	200	A
Avalanche energy	V_G=10V, R_G=25Ω, L=0.5mH, IAS=16.5A		EAS	68	mJ
Total Power Dissipation (Note 1,2)	Steady-State	T_A=25	P_D	2.3	W
		T_A=100		1.1	
Total Power Dissipation (Note 1,3)	Steady-State	T_C=25		50	
		T_C =100		25	
Junction and Storage Temperature Range			T_J ,T_{STG}	-55～+175	

■

Thermal Resistance Junction-to-Ambient (Note 2)	Steady-State	$R_{\theta JA}$	55	65	/W
Thermal Resistance Junction-to-Case	Steady-State	$R_{\theta JC}$	2.4	3	

■ (Example)

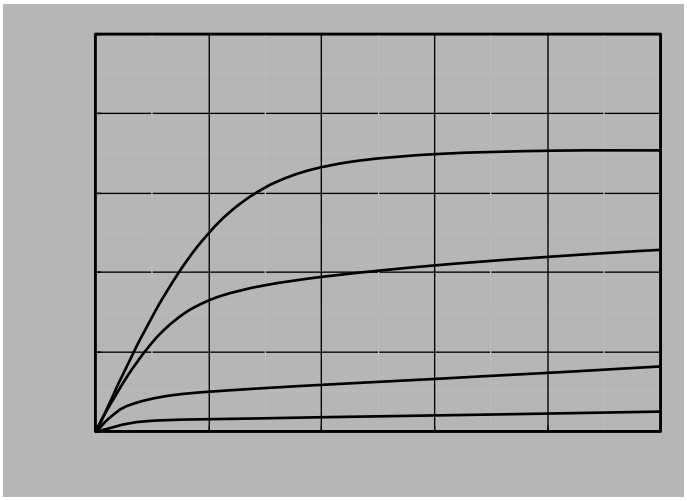
YJQ6D9G04HHQ	F1	Q6D9G04	5000	10000	100000	13“ reel

■ (T_J=25℃ unless otherwise noted)

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
		V_{DS}=40V, V_{GS}=0V, Tj=125	-	-	100	
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	2	3	4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A	-	5.1	6.9	mΩ
Diode Forward Voltage	V_{SD}	I_S=20A, V_{GS}=0V	-	-	1.2	V
Gate resistance	R_G	f=1MHz	-	1.8	-	Ω
Maximum Body-Diode Continuous Current	I_S		-	-	50	A
Input Capacitance	C_{iss}	V_{DS}=20V, V_{GS}=0V, f=1MHz	-	1190	-	pF
Output Capacitance	C_{oss}		-	365	-	
Reverse Transfer Capacitance	C_{rss}		-	12.6	-	
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=20V, I_D=20A	-	14.5	-	nC
Gate-Source Charge	Q_{gs}		-	4.9	-	
Gate-Drain Charge	Q_{gd}		-	3	-	
Reverse Recovery Charge	Q_{rr}	I_F=20A, di/dt=100A/us	-	12	-	nC
Reverse Recovery Time	t_{rr}		-	21	-	ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V, V_{DD}=20V, I_D=20A R_{GEN}=3Ω	-	11.6	-	ns
Turn-on Rise Time	t_r		-	57.5	-	
Turn-off Delay Time	$t_{D(off)}$		-	16.2	-	
Turn-off fall Time	t_f		-	4.2	-	

Note：

1. The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
2. The value of $R_{\theta JA}$ is measured with the device mounted on the 40mm*40mm*1.1mm single layer FR-4 PCB board with 1 in^2 pad of 2oz. Copper, in the still air environment with TA =25℃.The maximum allowed junction temperature of 175℃. The value in any given application depends on the user's specific board design.
3. Thermal resistance from junction to soldering point (on the exposed drain pad).



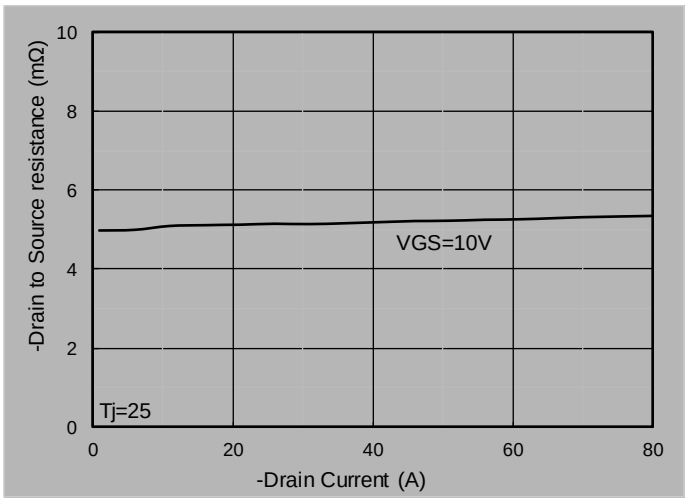


Figure 7. $R_{DS(on)}$ VS Drain Current

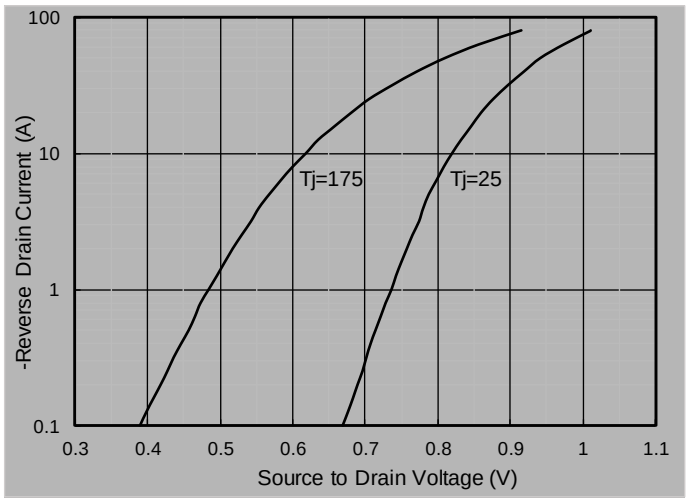


Figure 8. Forward characteristics of reverse diode

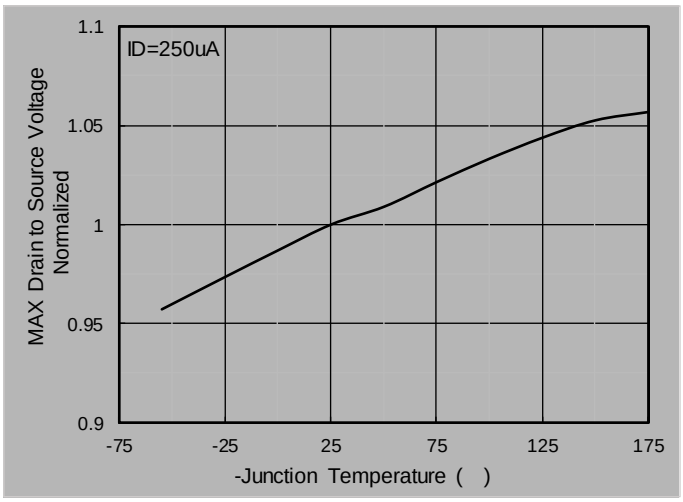


Figure 9. Normalized breakdown voltage

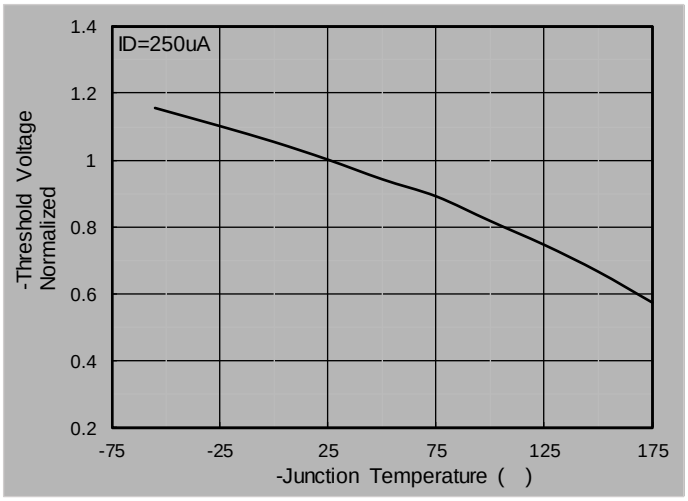


Figure 10. Normalized Threshold voltage

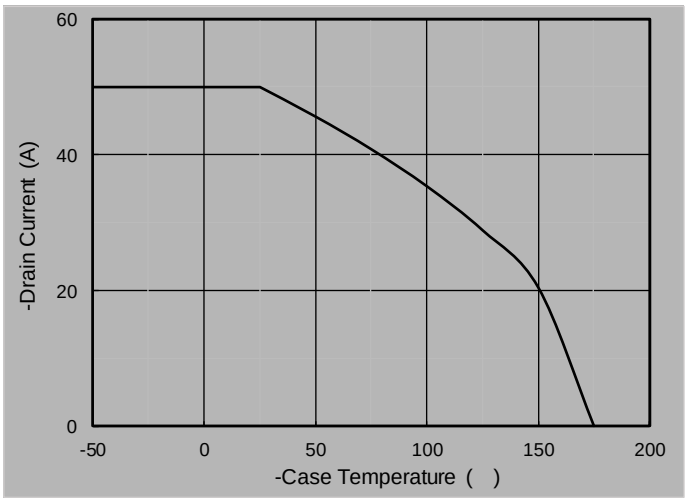


Figure 11. Current dissipation

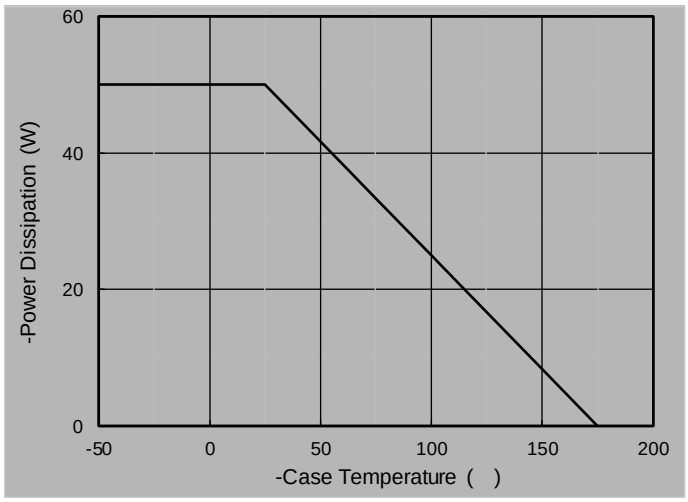
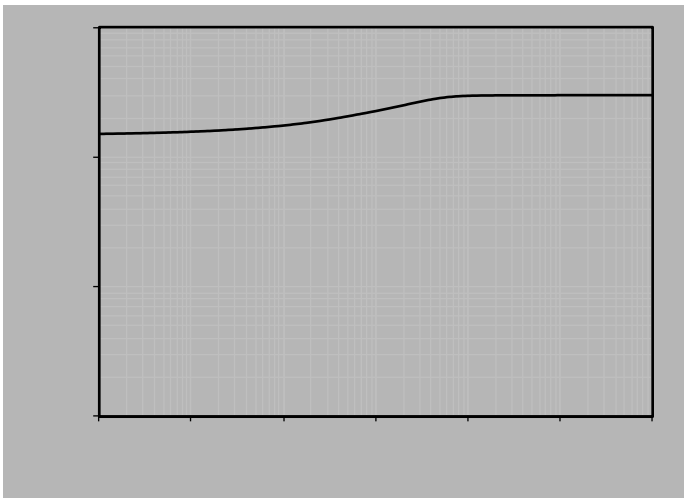
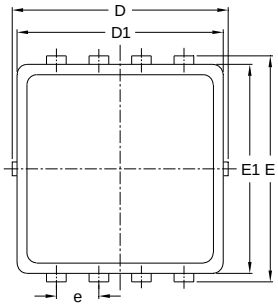


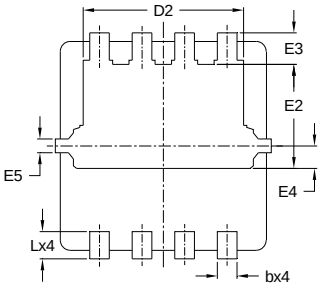
Figure 12. Power dissipation



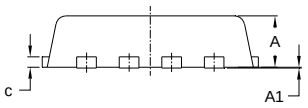
■



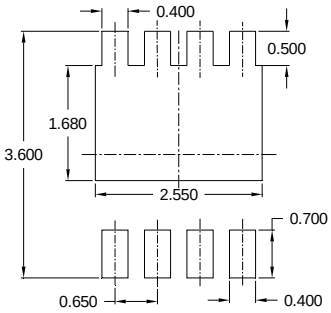
TOP VIEW



BOTTOM VIEW



SIDE VIEW



SUGGESTED SOLDER PAD LAYOUT

UNIT：mm

DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.028	0.033	0.700	0.850
A1	0.000	0.002	0.000	0.050
b	0.008	0.016	0.200	0.400
c	0.004	0.010	0.100	0.250
D	0.124	0.136	3.150	3.450
D1	0.118	0.130	3.000	3.300
D2	0.089	0.104	2.250	2.650
E	0.124	0.136	3.150	3.450
E1	0.114	0.126	2.900	3.200
E2	0.052	0.068	1.320	1.720
E3	0.011	0.026	0.280	0.650
E4	0.013 REF		0.330 REF	
E5	0.008 REF		0.200 REF	
e	0.026 BSC		0.650 BSC	
L	0.012	0.020	0.300	0.500

NOTE:
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with automotive electronics,are not designed for use in medical, life-saving, lifesustaining,or military,Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http://www.21yangjie.com , or consult your nearest Yangjie's sales office for further assistance.