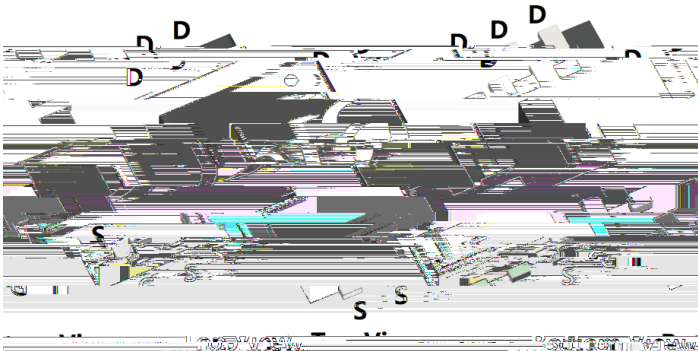




N-Channel Enhancement Mode Field Effect Transistor



Product Summary

V_{DS}	30V
I_D	100A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	2.1m
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	4.5m
100% EAS Tested	
100% V_{DS} 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 1
 Epoxy Meets UL 94 V-0 Flammability Rating
 Halogen Free

Applications

Power switching application
 Uninterruptible power supply
 DC-DC convertor

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	30	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25$	I_D	24	A
	$T_A=100$		15	
	$T_C=25$		100	
	$T_C=100$		63	
Pulsed Drain Current ^A		I_{DM}	400	A
Avalanche energy ^B		EAS	162	mJ
Total Power Dissipation ^C	$T_A=25$	P_D	2.5	W
	$T_A=100$		1	
	$T_C=25$		50	
	$T_C=100$		20	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 +150	

Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^D	Steady-State	R_{JA}	40	50	/W
Thermal Resistance Junction-to-Case	Steady-State	R_{JC}	2	2.5	

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJQ100G03AJR	F1	100G03A	5000	10000	100000	13" reel



YJQ100G03AJR

Electrical Characteristics ($T_J=25$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	-	-	1	μA
		$V_{DS}=30V, V_{GS}=0V, T_J=150$	-	-	100	
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=50A$	-	1.6	2.1	m
		$V_{GS}=10V, I_D=20A$	-	1.6	2.1	
		$V_{GS}=4.5V, I_D=20A$	-	2.5	4.5	
Diode Forward Voltage	V_{SD}	$I_S=50A, V_{GS}=0V$	-	-	1.2	V
Gate resistance	R_G	$f=1MHz$	-	3	-	
Maximum Body-Diode Continuous Current	I_S		-	-	100	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=500KHz$	-	2630	-	μF
Output Capacitance	C_{oss}		-	1830	-	
Reverse Transfer Capacitance	C_{riss}		-	100	-	
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=15V, I_D=50A$	-	45	-	nC
Gate-Source Charge	Q_{gs}		-	17	-	
Gate-Drain Charge	Q_{gd}		-	8	-	
Reverse Recovery Charge	Q_{rr}	$I_F=50A, di/dt=100A/us$	-	40	-	n 1 32S

Typical Electrical and Thermal Characteristics Diagrams

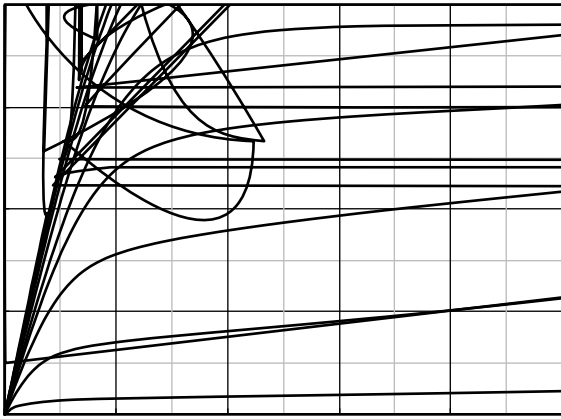


Figure 1. Output Characteristics

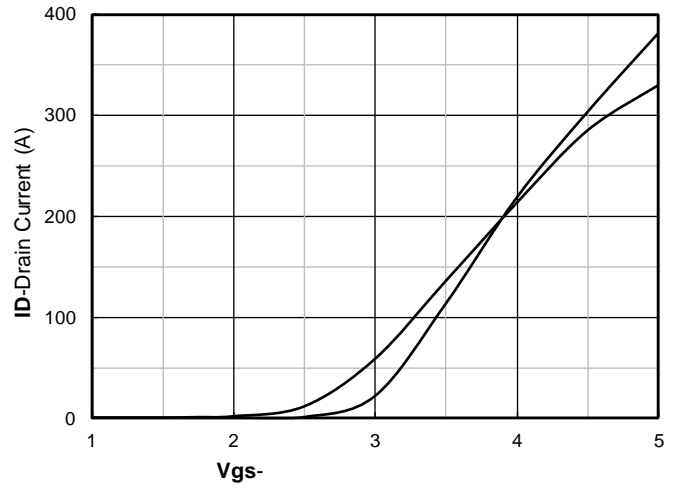


Figure 2. Transfer Characteristics



Figure 3. Capacitance Characteristics

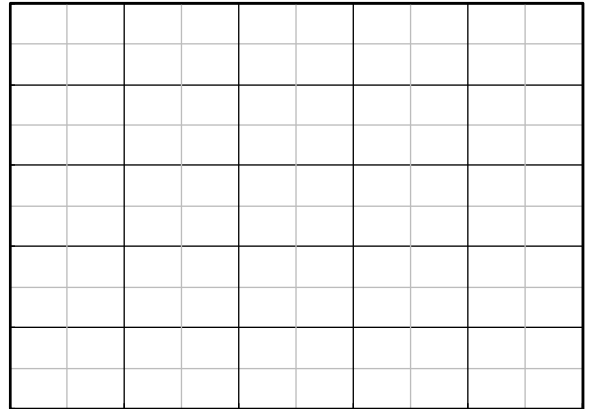


Figure 4. Gate Charge

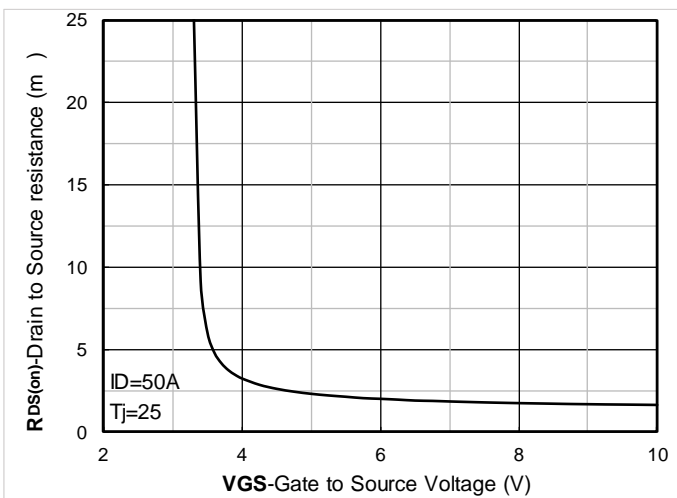


Figure 5. On-Resistance vs Gate to Source Voltage

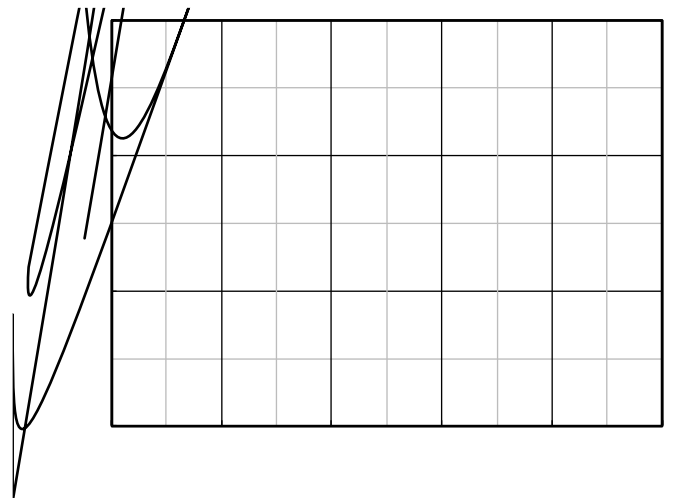


Figure 6. Normalized On-Resistance

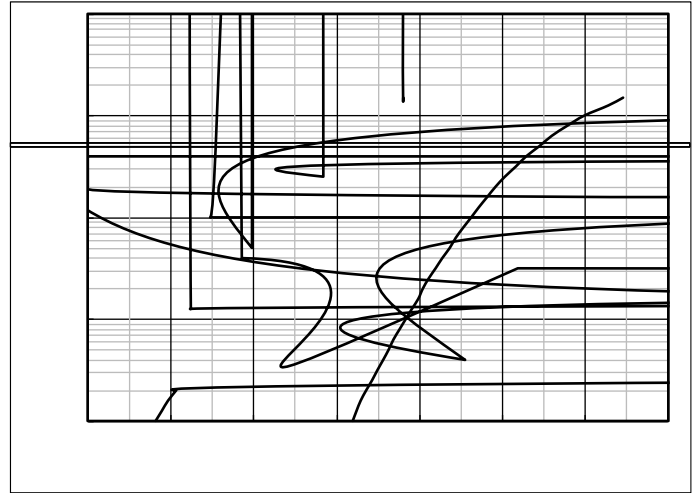


Figure 8. Forward characteristics of reverse diode

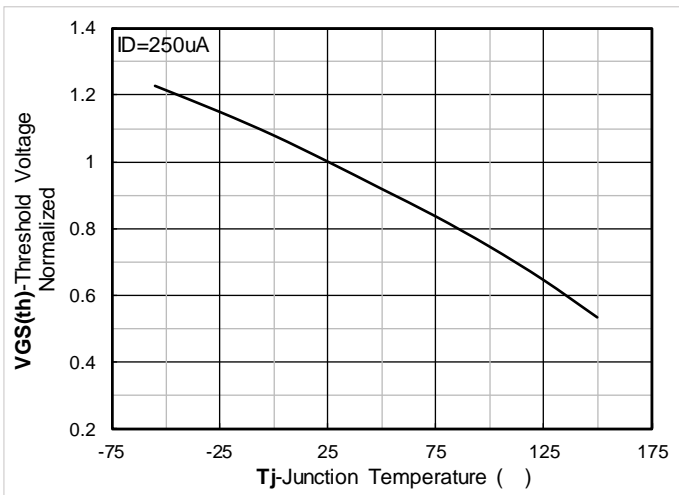


Figure 9. Normalized Threshold voltage

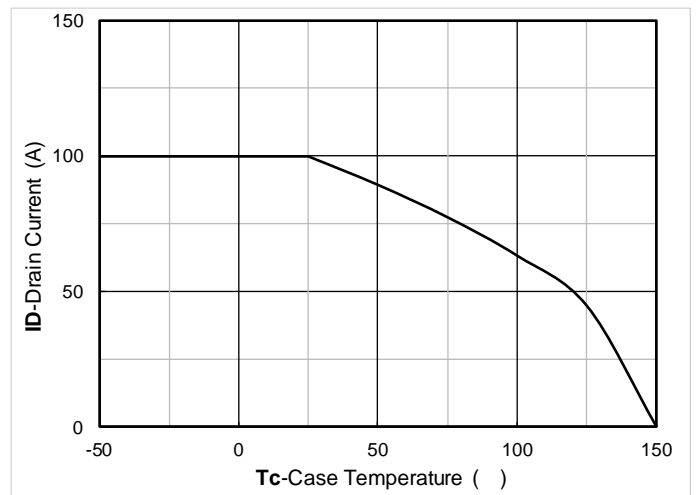


Figure 10. Current dissipation

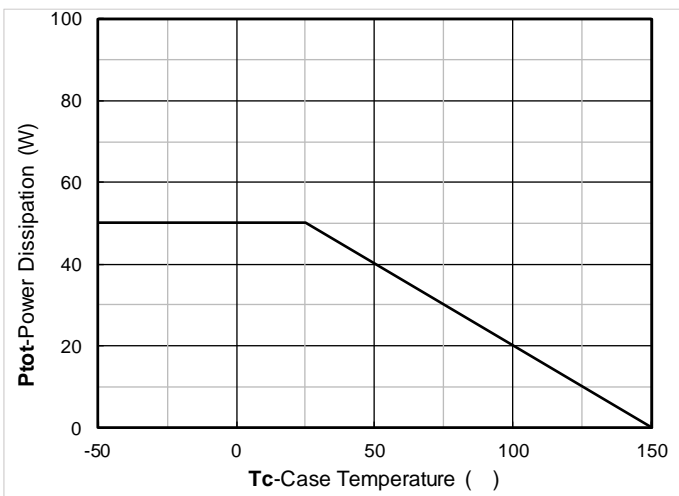


Figure 11. Power dissipation

Figure 12. Maximum Transient Thermal Impedance

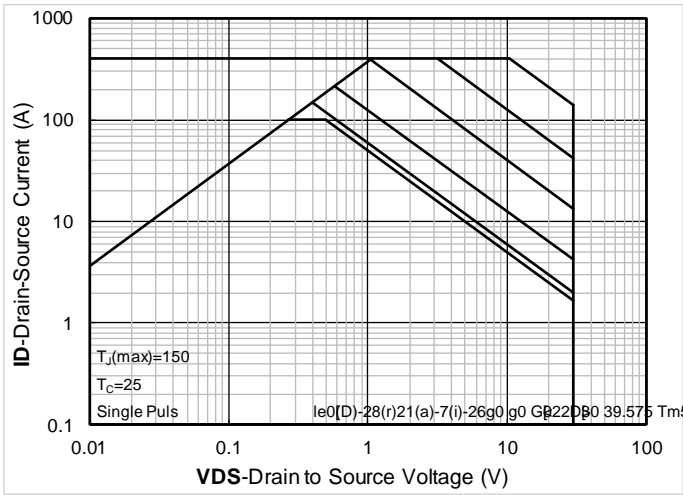


Figure 13. Safe Operation Area

Test Circ1P AMCID 7Lang (en-US)>BDC 00000888 0 5Bit*nBT/F2108 Tf1 0 0 1 9 90m0 g0 G(Q1)ETQ

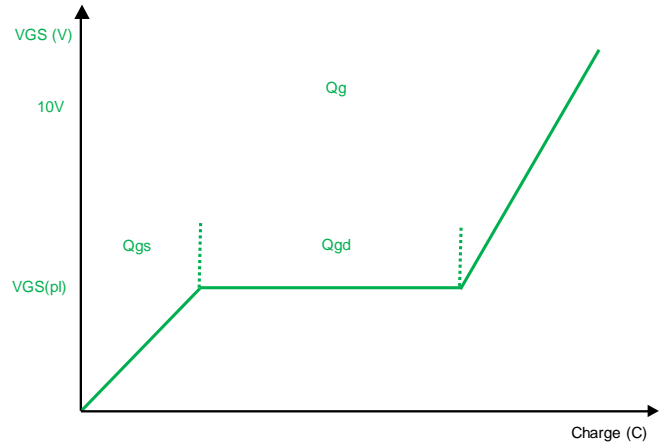
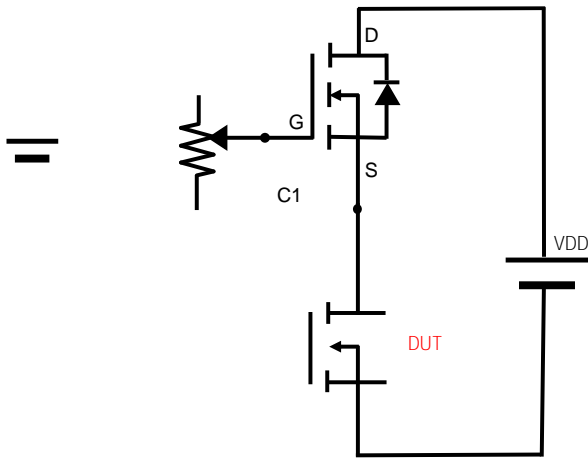


Figure B. Gate Charge Test Circuit & Waveform

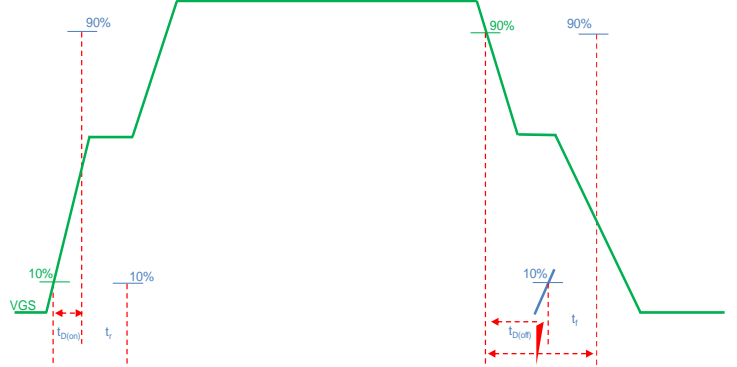
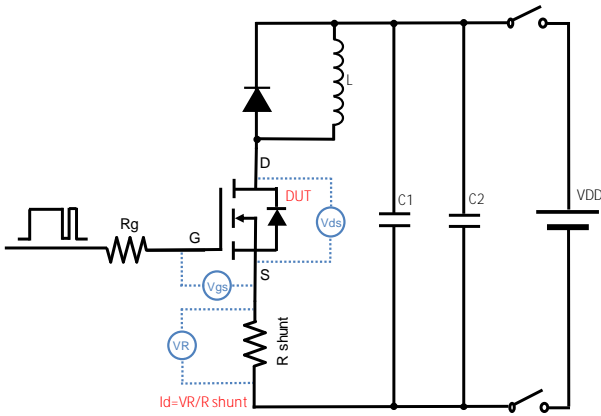


Figure C. Resistive Switching Test Circuit & Waveform

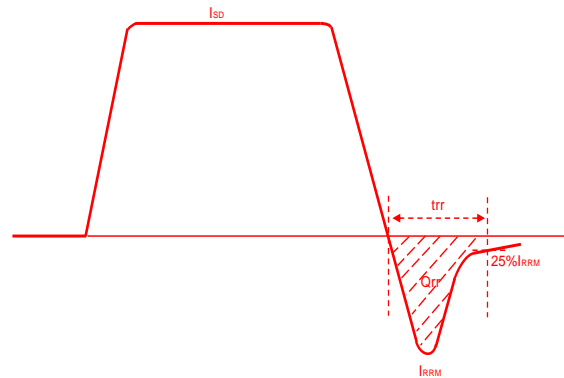
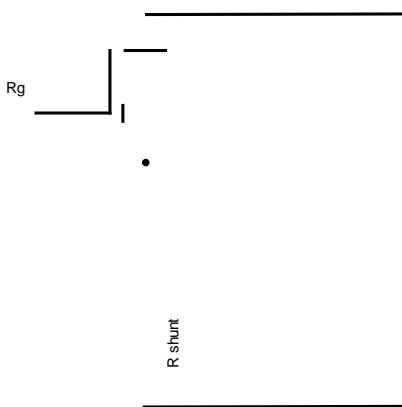
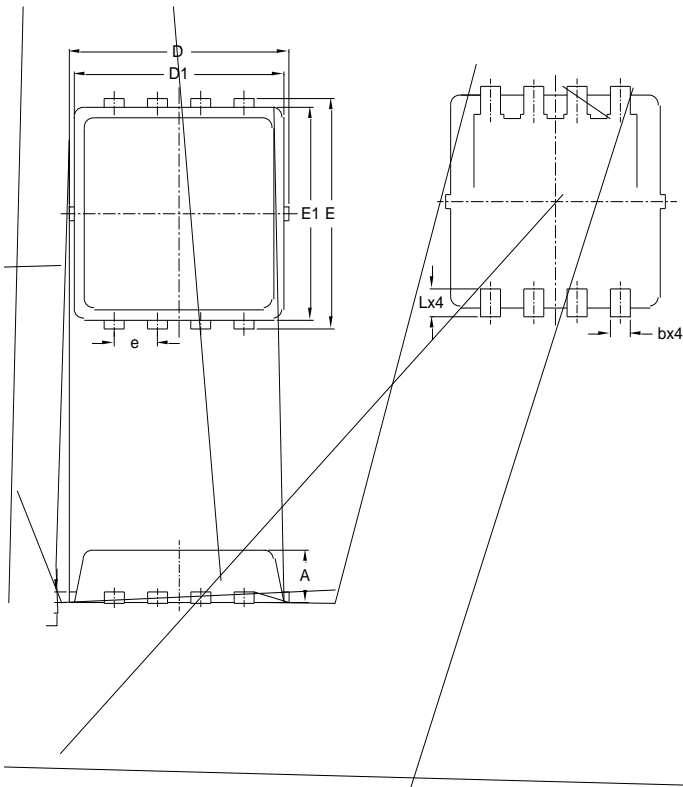


Figure D. Diode Recovery Test Circuit & Waveform



YJQ100G03AJR

PDFN3333-8L Package information



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.

UNIT mm

