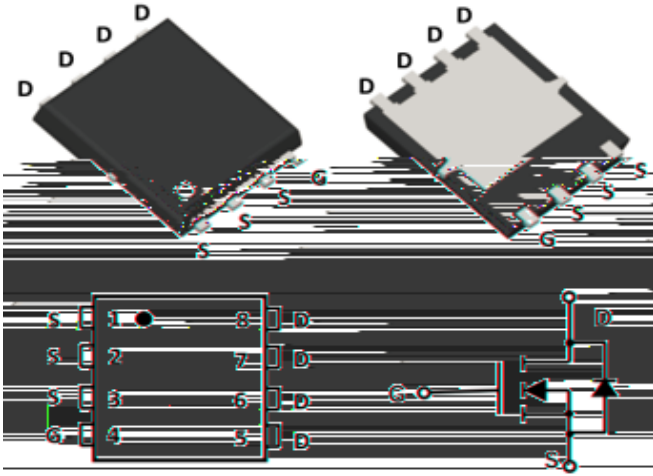




YJG120G10BR

N-Channel Enhancement Mode Field Effect Transistor

PDFN5060



Product Summary

- V_{DS} 100V
- I_D 120A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) 4.2mohm
- 100% UIS Tested
- 100% V_{DS} Tested

General Description

- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- Power switching application
- Uninterruptible power supply
- PD charge
- DC-DC convertor

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	100	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_C=25$	I_D	120	A
	$T_C=100$		76	
Pulsed Drain Current ^A		I_{DM}	480	A
Avalanche energy ^B		EAS	552	mJ
Total Power Dissipation ^C	$T_C=25$	P_D	108	W
	$T_C=100$		43	
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	$R_{\theta JA}$	45	55	/W
Thermal Resistance Junction-to-Case	Steady-State	$R_{\theta JC}$	0.95	1.16	

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG120G10BR	F1	G120G10BR	5000	10000	100000	13" reel



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■ 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	100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, 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	2	2.8	4	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =60A	-	3.5	4.2	mΩ
		V _{GS} =10V, I _D =20A	-	3.5	4.2	mΩ
Diode Forward Voltage	V _{SD}	I _S =60A, V _{GS} =0V	-	0.9	1.2	V
Gate resistance	R _G	f=1MHz, Open drain	-	0.8	-	Ω
Maximum Body-Diode Continuous Current	I _S		-	-	120	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f=1MHZ	-	4400		pF
Output Capacitance	C _{oss}		-	1600		
Reverse Transfer Capacitance	C _{rss}		-	20		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =50V, I _D =60A	-	39	-	nC
Gate-Source Charge	Q _{gs}		-	14	-	
Gate-Drain Charge	Q _{gd}		-	6	-	
Reverse Recovery Charge	Q _{rr}	I _F =60A, di/dt=500A/us	-	180	-	nC
Reverse Recovery Time	t _{rr}		-	40	-	nS
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DD} =50V, I _D =60A R _{GEN} =2.2Ω	-	20	-	nS
Turn-on Rise Time	t _r		-	95	-	
Turn-off Delay Time	t _{D(off)}		-	30	-	
Turn-off fall Time	t _f		-	7	-	

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

B. T_J=25 , V_{DD}=50V, V_G=10V, R_G=25Ω, L=2mH, I_{AS}=23.5A.

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

D. The value of R_{θJA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25 . The maximum allowed junction temperature of 150 . The value in any given application depends on the user's specific board design.



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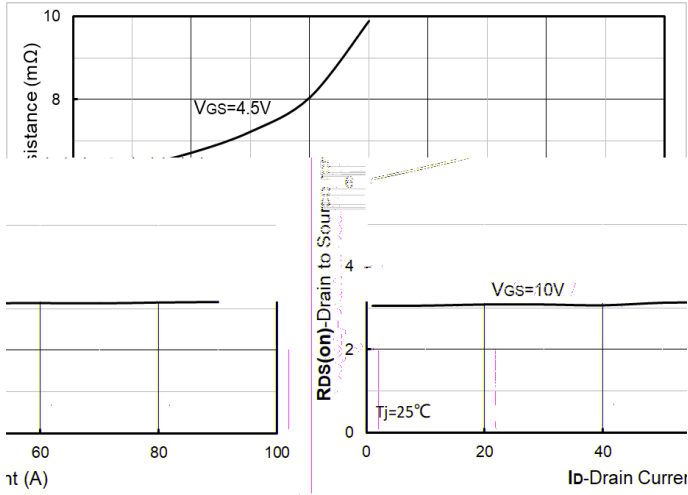


Figure7. RDson VS Drain Current

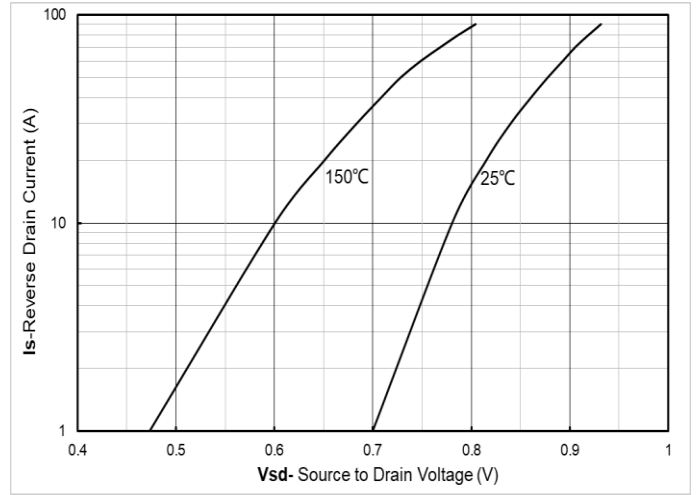


Figure8. Forward characteristics of reverse diode

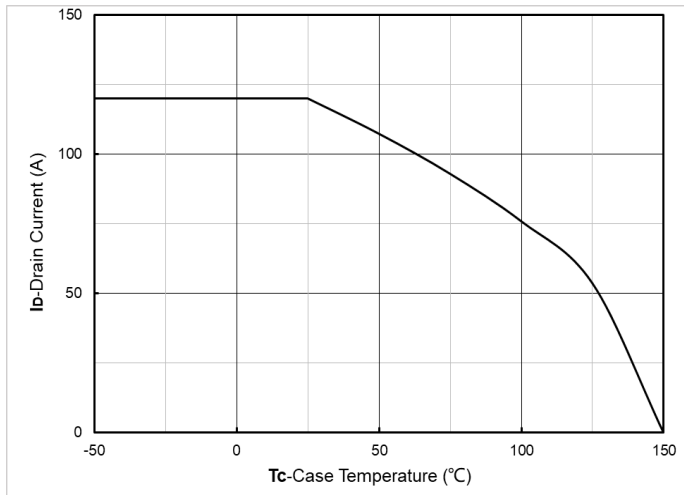


Figure9. Current dissipation

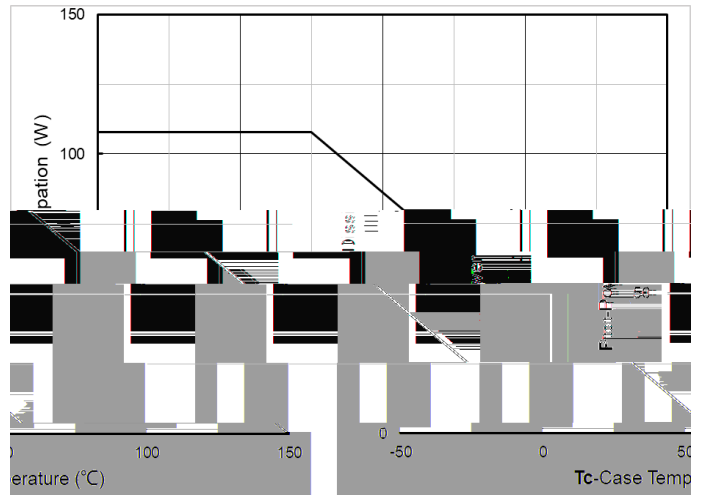


Figure10. Power dissipation

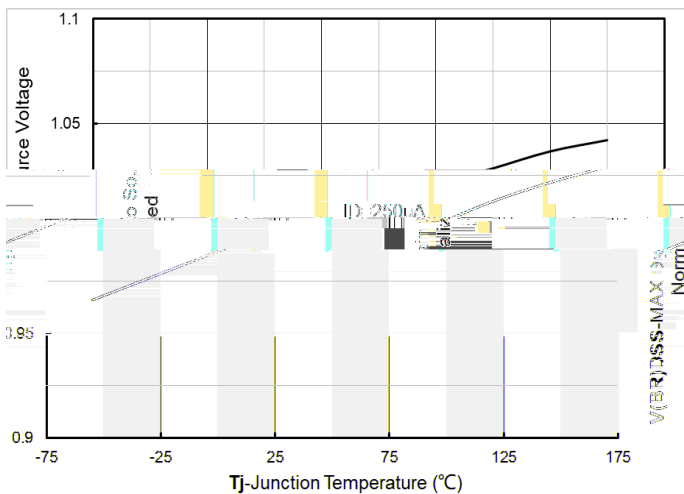


Figure11. Normalized breakdown voltage

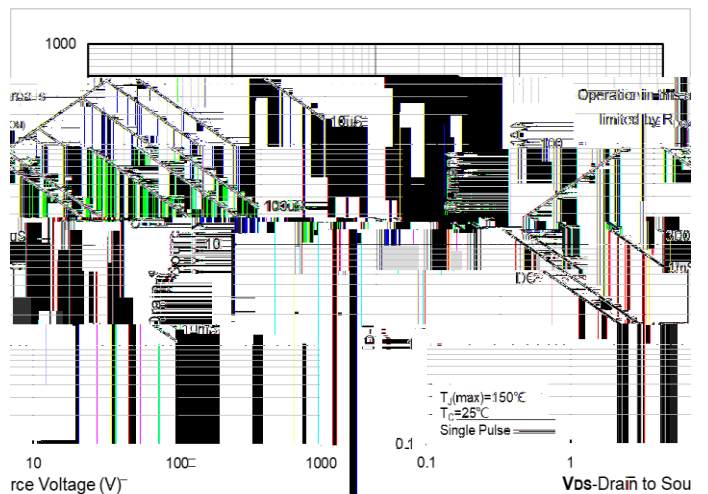


Figure12. Safe Operation Area

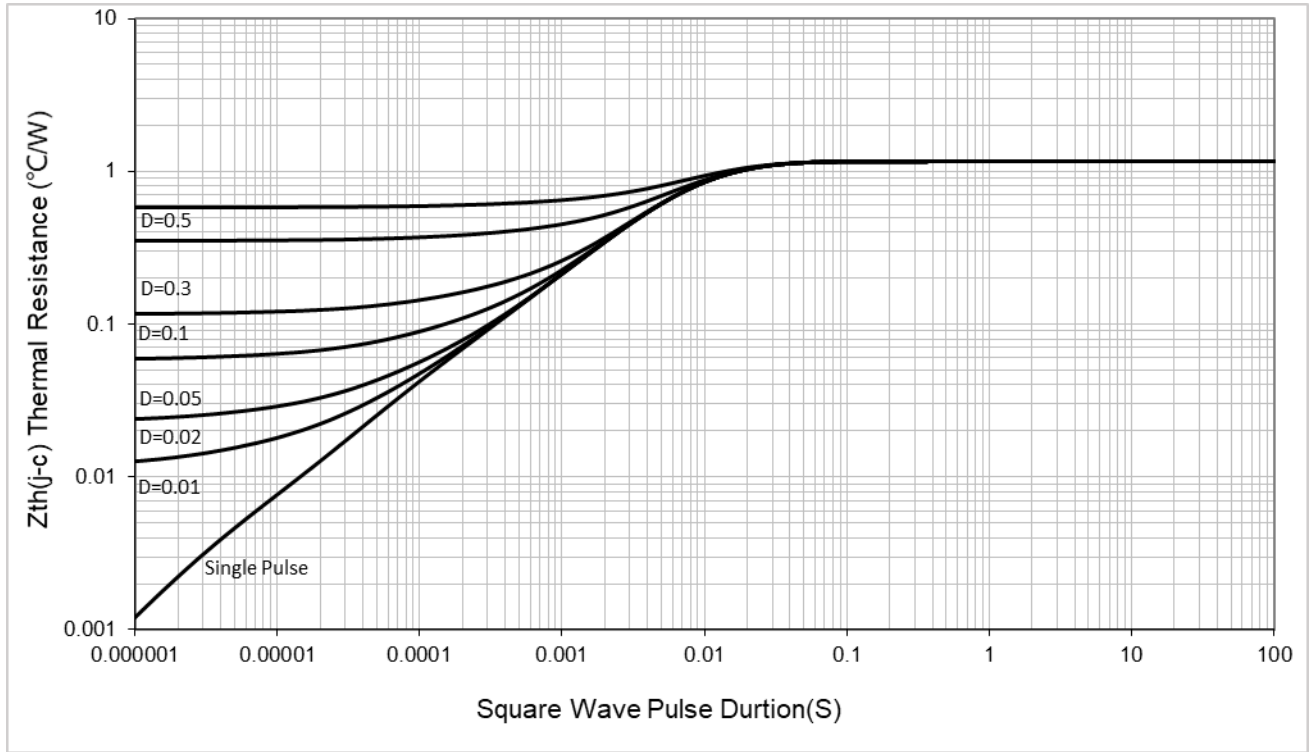
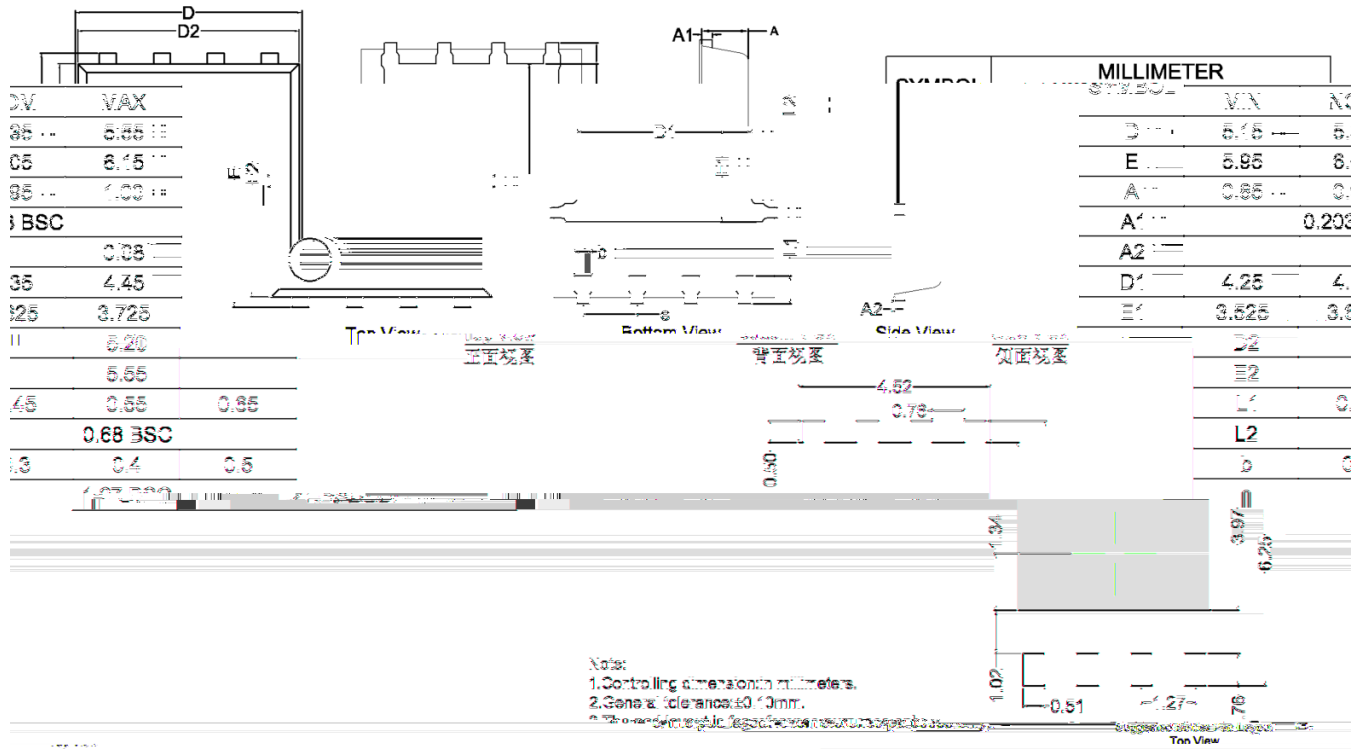


Figure13. Maximum Transient Thermal Impedan



YJG120G10BR

■ PDFN5060-8L-D-0.95MM Package information





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