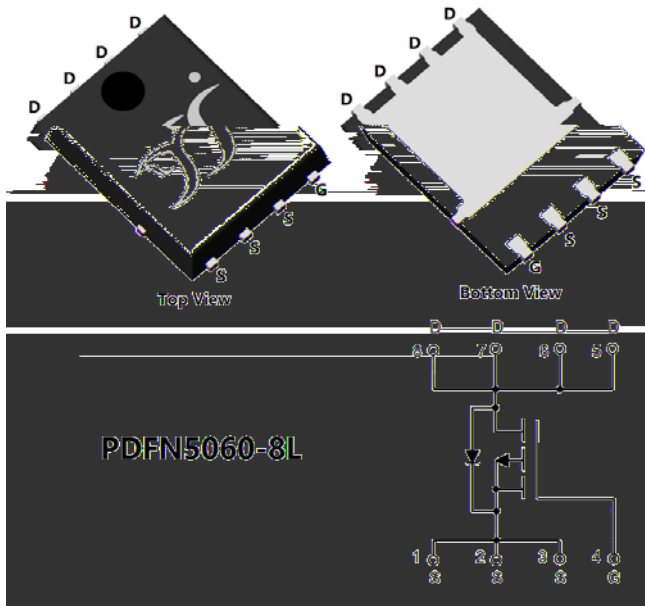


P-Channel Enhancement Mode Field Effect Transistor



Product Summary

- V_{DS} -100 V
- I_D -25 A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) 55 m Ω
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) 60 m Ω
- 100% UIS Tested
- 100% ∇V_{DS} Tested

General Description

- Split gate trench MOSFET technology
- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity
- Part no. with suffix "Q" means AEC-Q101 qualified

Applications

- Power management
- Portable equipment

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	-100	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25^\circ\text{C}$	I_D	-4	A
	$T_A=100^\circ\text{C}$		-2.5	
	$T_C=25^\circ\text{C}$		-25	
	$T_C=100^\circ\text{C}$		-15	
Pulsed Drain Current ^A		I_{DM}	-80	A
Avalanche energy ^B		EAS	162	mJ
Total Power Dissipation ^C	$T_A=25^\circ\text{C}$	P_D	2.5	W
	$T_A=100^\circ\text{C}$		1	
	$T_C=25^\circ\text{C}$		70	
	$T_C=100^\circ\text{C}$		28	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 +150	$^\circ\text{C}$

■ Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^D	Steady-State	$R_{\theta JA}$	40	50	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case	Steady-State	$R_{\theta JC}$	1.5	1.8	



YJG25GP10AQ

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG25GP10AQ	F1	YJG25GP10A	5000	10000	100000	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	-100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-100V, V _{GS} =0V	-	-	-1	μA
		V _{DS} =-100V, V _{GS} =0V, T _J =150°C	-	-	-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	-1.0	-1.7	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-20A	-	42	55	mΩ
		V _{GS} =-4.5V, I _D =-10A	-	46	60	
Diode Forward Voltage	V _{SD}	I _S =-10A, V _{GS} =0V	-	-0.9	-1.2	V
Gate resistance	R _G	f=1MHz, Open drain	-	5.3	-	Ω
Maximum Body-Diode Continuous Current	I _S		-	-	-25	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-50V, V _{GS} =0V, f=1MHz	-	2200	-	pF
Output Capacitance	C _{oss}		-	220	-	
Reverse Transfer Capacitance	C _{rss}		-	20	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-50V, I _D =-12.5A	-	40	-	nC
Gate-Source Charge	Q _{gs}		-	8	-	
Gate-Drain Charge	Q _{gd}		-	9	-	
Reverse Recovery Charge	Q _{rr}	I _F =-12.5A, di/dt=100A/us	-	280	-	nC
Reverse Recovery Time	t _{rr}		-	100	-	ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V, V _{DD} =-50V, I _D =-12.5A R _{GEN} =6Ω	-	15	-	ns
Turn-on Rise Time	t _r		-	40	-	
Turn-off Delay Time	t _{D(off)}		-	105	-	
Turn-off fall Time	t _f		-	110	-	

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

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Gat



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Typical Electrical and Thermal Characteristics Diagrams

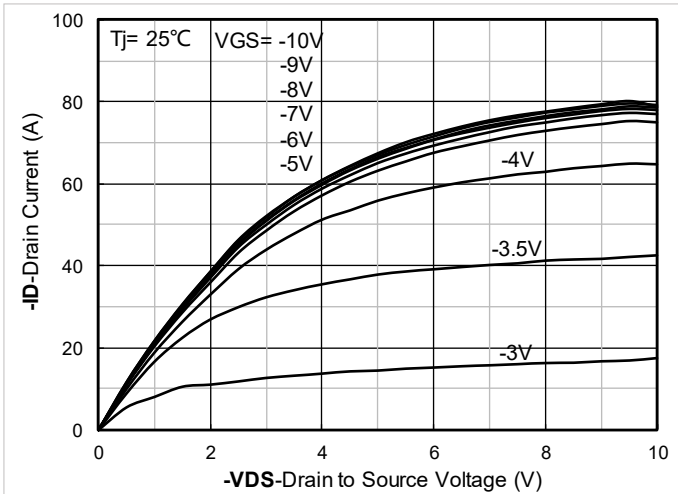


Figure 1. Output Characteristics

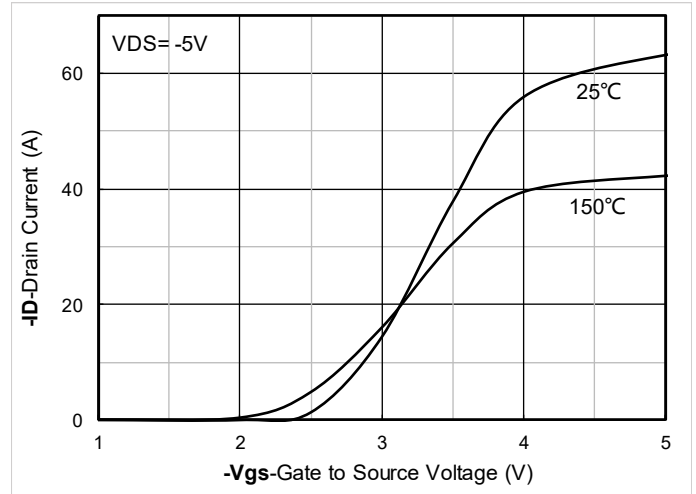


Figure 2. Transfer Characteristics

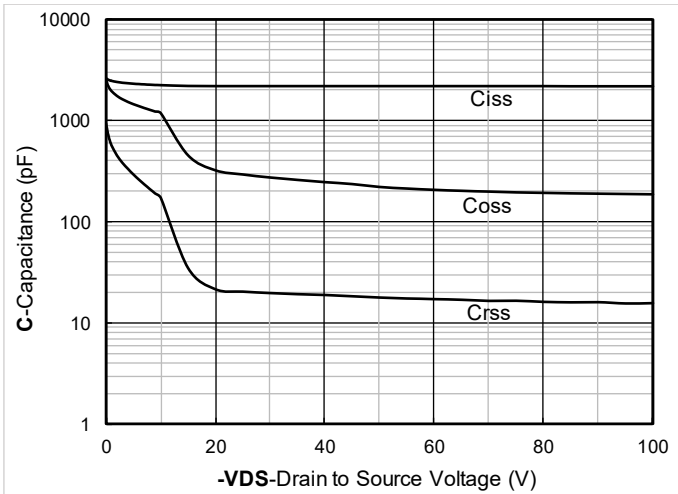


Figure 3. Capacitance Characteristics

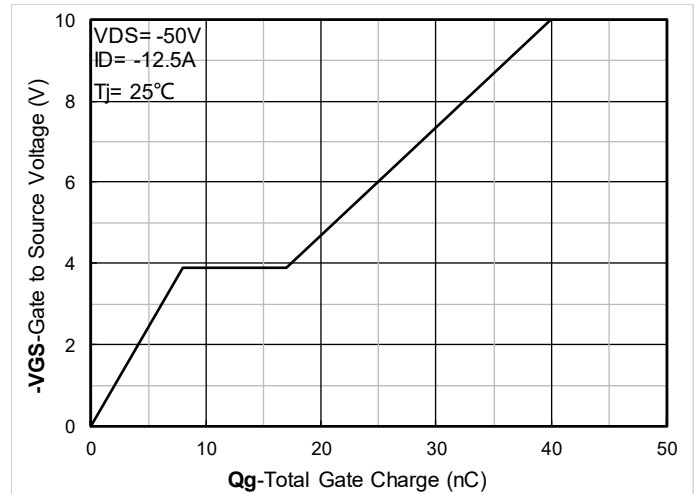


Figure 4. Gate Charge

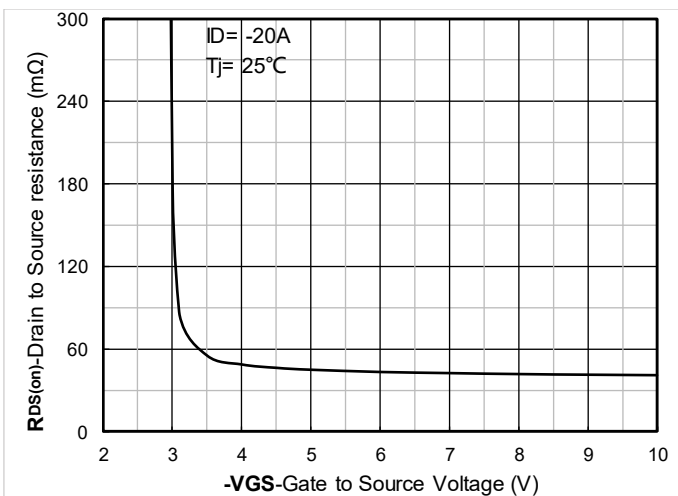


Figure 5. On-Resistance vs Gate to Source Voltage

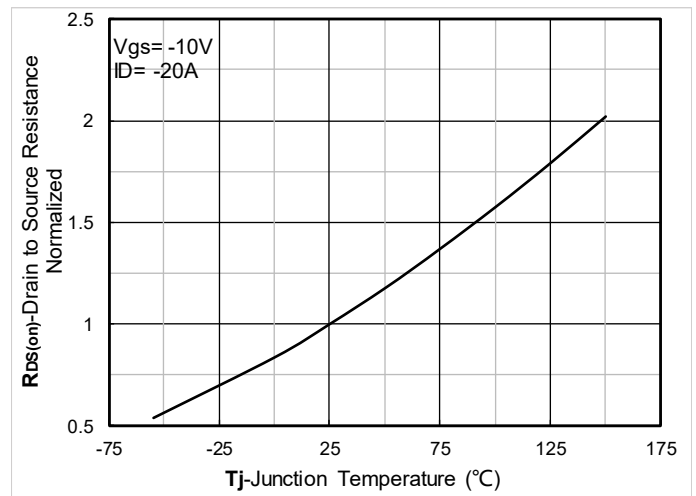
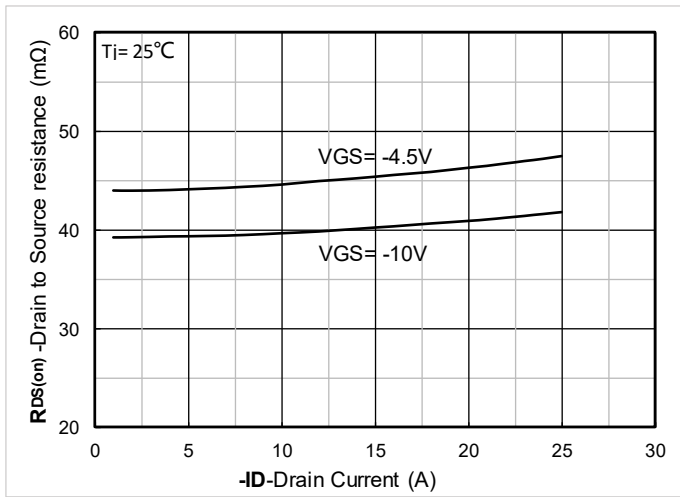


Figure 6. Normalized On-Resistance



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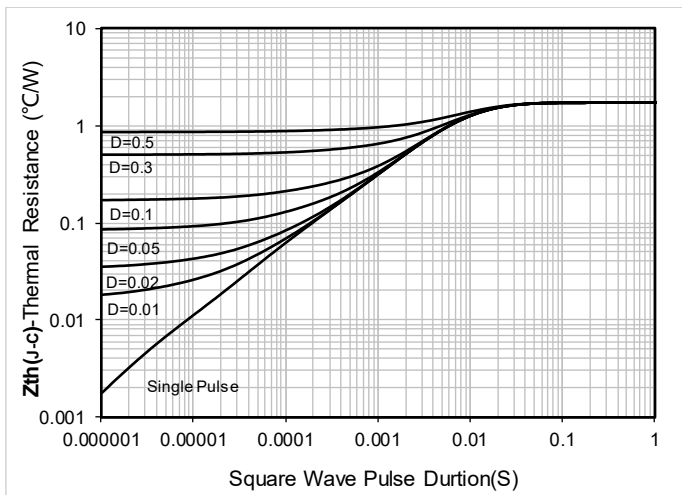


Figure 13. Maximum Transient Thermal Impedance

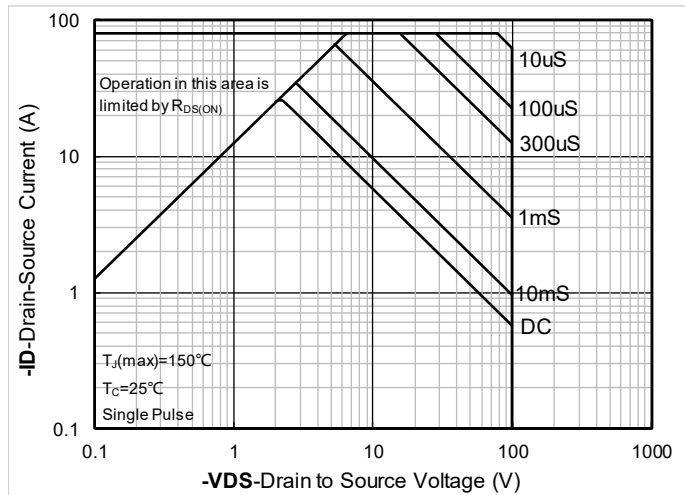
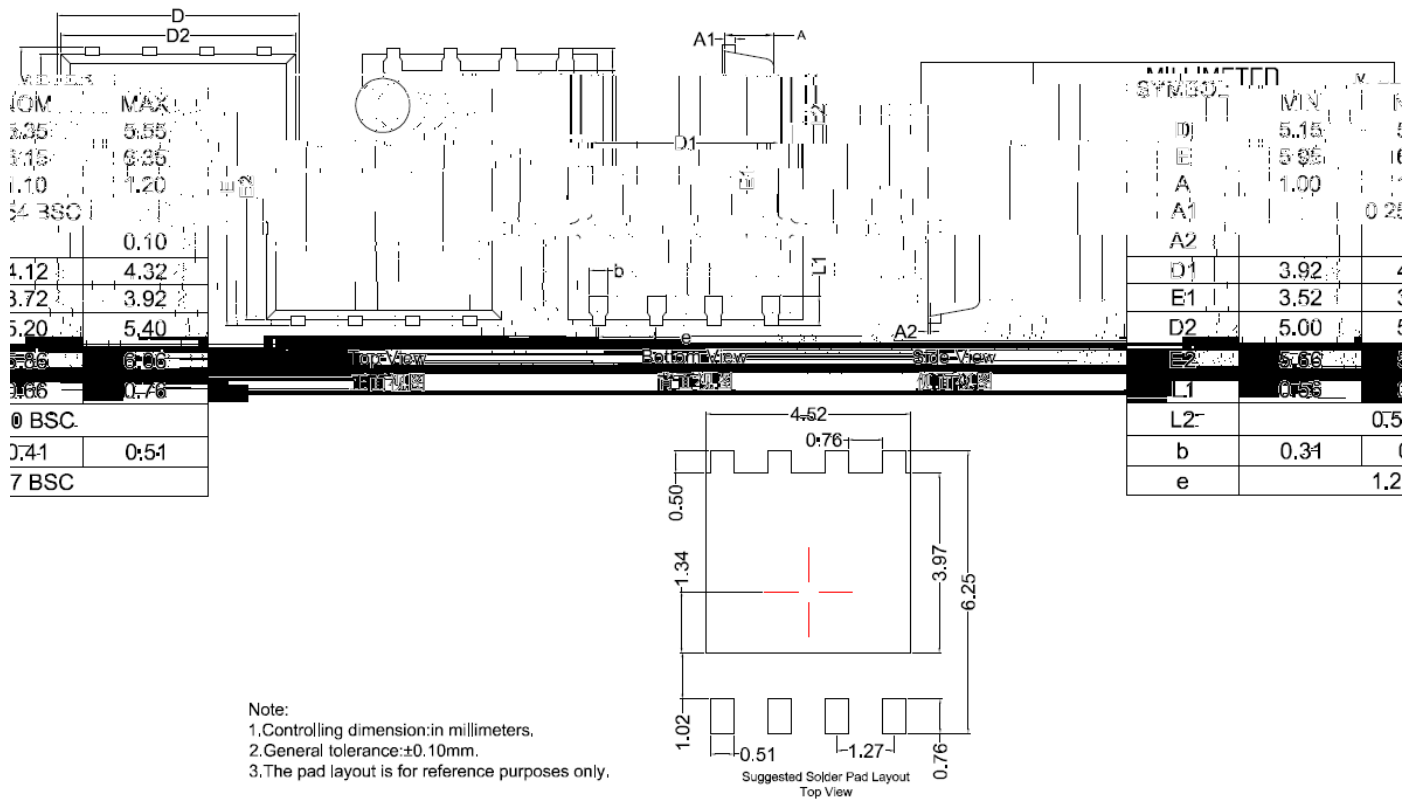


Figure 14. Safe Operation Area



YJG25GP10AQ

■ Package information





YJG25GP10AQ

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