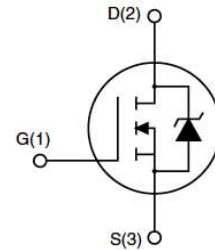


Features

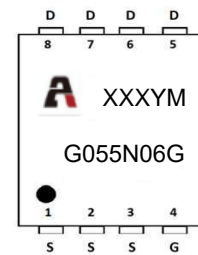
- 60V,70A
 $R_{DS(ON)} < 5.5m\Omega @ V_{GS}=10V$ TYP:4.2 m Ω
 $R_{DS(ON)} < 7.5m\Omega @ V_{GS}=4.5V$ TYP:5.8m Ω
- Low RDS(ON)
- RoHS compliant (Note 1)
- Halogen-free (Note 1)
- 100% UIS Tested



Schematic Diagram

Applications

- Battery Management System
- PWM Application
- DC-DC Converter



Marking and pin Assignment

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G055N06G	APG055N06G	PDFN5X6	-	-	5000

ABSOLUTE MAXIMUM RATINGS (T_J=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit	
Drain-Source Voltage	V _{DS}	60	V	
Gate-Source Voltage	V _{GS}	±20	V	
Continuous Drain Current (Silicon Limited)	I _D	T _c =25°C	84	A
		T _c =100°C	53	A
Continuous Drain Current (Package Limited) T _c =25°C		70	A	
Pulsed Drain Current ⁽³⁾	I _{DM}	280	A	
Single Pulsed Avalanche Energy ⁽⁴⁾	E _{AS}	121	mJ	
Drain Power Dissipation	P _D	78	W	
Thermal Resistance from Junction to Case	R _{θJC}	1.6	°C/W	
Thermal Resistance- Junction to Ambient ⁽⁵⁾	R _{θJA}	45	°C/W	
Junction Temperature	T _J	150	°C	
Storage Temperature	T _{STG}	-55~ +150	°C	

MOSFET ELECTRICAL CHARACTERISTICS(T_J=25°C unless otherwise noted)

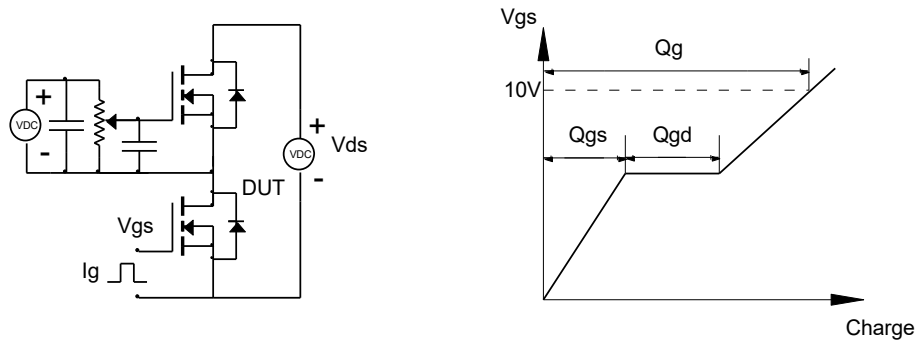
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	60	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V, V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	-	2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A	-	4.2	5.5	mΩ
		V _{GS} =4.5V, I _D =20A		5.8	7.5	mΩ
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f =1.0MHz	-	2140	-	pF
Output Capacitance	C _{oss}		-	850	-	
Reverse Transfer Capacitance	C _{rss}		-	60	-	
Gate Resistance	R _g	V _{GS} =0V, V _{DS} Open, f=1MHz		1.0		Ω
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =30V, I _D =20A, R _G =6Ω, V _G =10V	-	6.5	-	ns
Turn-on rise time	t _r		-	8	-	
Turn-off delay time	t _{d(off)}		-	38	-	
Turn-off fall time	t _f		-	16	-	
Total Gate Charge	Q _g	V _{DS} =30V, I _D =20A, V _{GS} =10V	-	30	-	nC
Gate-Source Charge	Q _{gs}		-	4.5	-	
Gate-Drain Charge	Q _{gd}		-	5	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V _{SD}	T _J =25°C, V _{GS} =0V, I _S =20A	-	-	1.2	V
Diode Forward current	I _S	T _C =25°C	-	-	70	A
Body Diode Reverse Recovery Time	t _{rr}	T _J =25°C, I _F =20A, di/dt=300A/us		39	-	ns
Body Diode Reverse Recovery Charge	Q _{rr}	T _J =25°C, I _F =20A, di/dt=300A/us		45	--	nc

Notes:

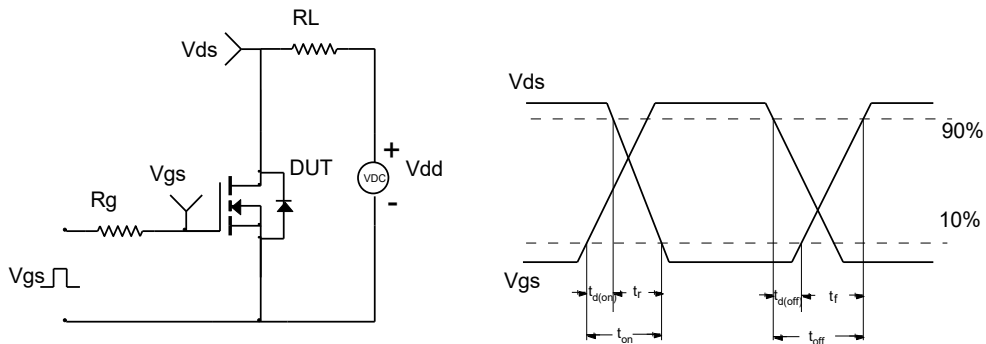
1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. L = 0.5 mH, VDD = 30 V, IAS = 22 A, RG = 25 Ω, Starting T_J = 25 °C
3. Pulse Test: pulse width ≤300μs, duty cycle ≤2%

Test Circuit

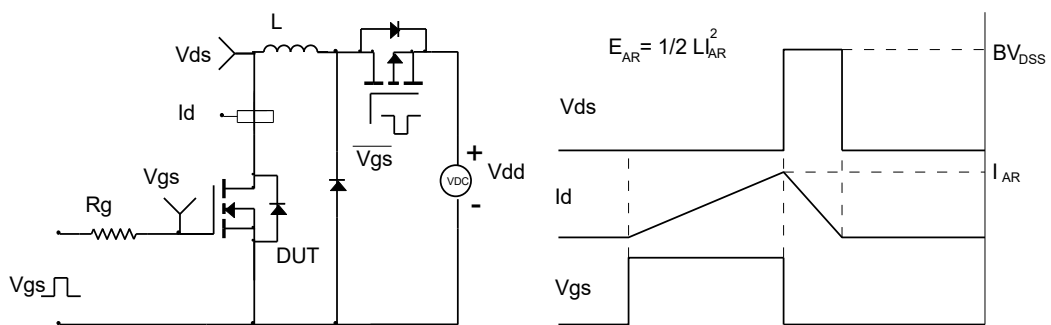
Gate Charge Test Circuit & Waveform



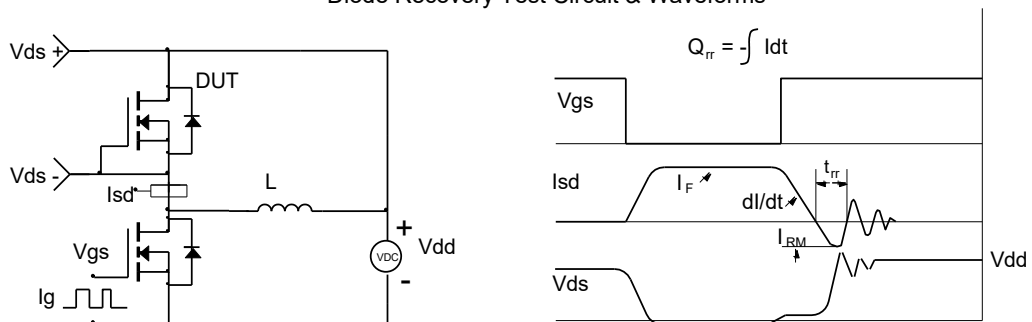
Resistive Switching Test Circuit & Waveforms



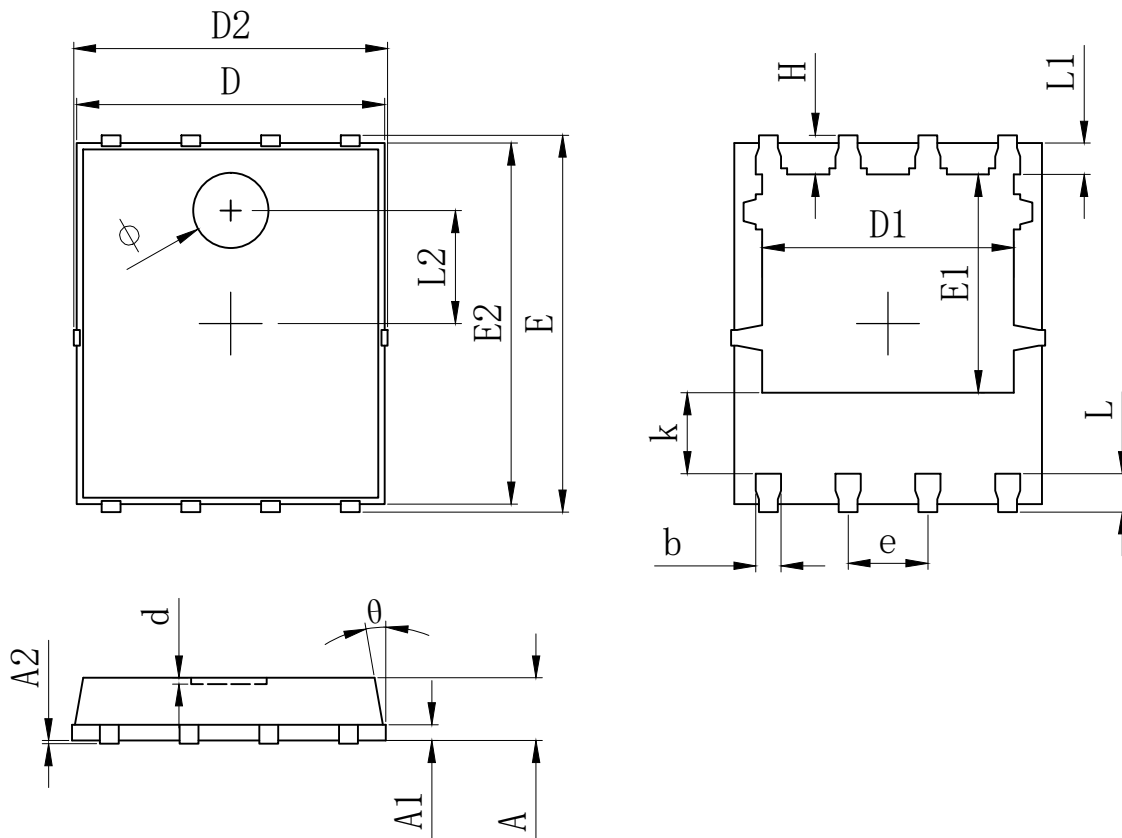
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



PDFN5X6 Package Information



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	0.900	1.000	1.100
A1	0.254 REF.		
A2	0~0.05		
D	4.824	4.900	4.976
D1	3.910	4.010	4.110
D2	4.924	5.000	5.076
E	5.924	6.000	6.076
E1	3.375	3.475	3.575
E2	5.674	5.750	5.826
b	0.350	0.400	0.450
e	1.270 TYP.		
L	0.534	0.610	0.686
L1	0.424	0.500	0.576
L2	1.800 REF.		
k	1.190	1.290	1.390
H	0.549	0.625	0.701
θ	8°	10°	12°
ϕ	1.100	1.200	1.300
d			0.100

Revision History

Revision	Release	Remark
V1.0	2023/11/28	Initial Release

Disclaimer

The information given in this document describes the independent performance of the product, but similar performance is not guaranteed under other working conditions, and cannot be guaranteed when installed with other products or equipment. To achieve the required performance of the product in actual scenarios, the customer should conduct a complete application test to assess the functionality of the product.

Allpower assumes no responsibility for equipment failures result from using products at values that exceed the ratings, operating conditions, or other parameters listed in the product specifications.

The product described in this specification is not applicable for aerospace or other applications which requires high reliability. Customers using or selling these products for use in medical, life-saving, or life-sustaining applications do so at their own risk and agree to fully indemnify.

Due to product or technical improvements, the information described or contained herein may be changed without prior notice.