



DESCRIPTION

The AM70P06PJ is available in PDFN8(5x6) package.

BVDSS	RDS(ON)	ID
-60V	11mΩ	-70A

APPLICATION

- Motor Control
- Battery Management System
- Power Management
- DC-DC Converters

ORDERING INFORMATION

Package Type	Part Number	
PDFN8(5x6)	PJ	AM70P06PJ
Note	SPQ:5,000pcs/Reel	
AiT provides all RoHS products		

ABSOLUTE MAXIMUM RATINGS

T_C= 25°C, unless otherwise specified.

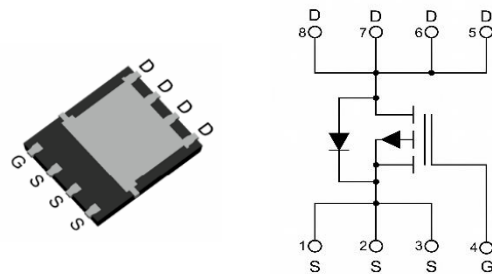
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	-60	V
Gate-Source Voltage		V _{GS}	±20	V
Drain Current-Continuous	T _A = 25°C	I _D	-70	A
	T _A = 100°C		-47	
Pulsed Drain Current		I _{DM}	-280	
Single Pulse Avalanche Energy ⁽¹⁾		E _{AS}	506	mJ
Power Dissipation		P _D	135	W
Power Dissipation	T _C = 100°C		54	
Operation Junction and Storage Temperature Range		T _J , T _{STG}	-55 ~ 150	°C
Thermal Resistance, Junction-to-case		R _{θJC}	0.93	°C/W

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

FEATURES

- V_{DS} = -60V, I_D = -70A
R_{DS(ON)} Typ = 11mΩ @ V_{GS} = -10V
R_{DS(ON)} Typ = 14mΩ @ V_{GS} = -4.5V
- Fast switching speed
- Surface mount package
- 100% single pulse avalanche energy test

PIN DESCRIPTION



Pin#	Symbol	Function
1, 2, 3	S	Source
4	G	Gate
5,6,7,8	D	Drain



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250uA	-60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-48V, V _{GS} =0V,	-	-	-1	μA
Gate to Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1.2	-1.8	-2.4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-20A	-	11	15	mΩ
		V _{GS} =-4.5V, I _D =-20A	-	14	18.5	
Gate Resistance	R _G	V _{DS} =-30V, f=1MHz	-	8.5	-	Ω
Dynamic Characteristics						
Input Capacitance	C _{iSS}	V _{DS} =-30V, V _{GS} =0V, f=1MHz	-	7700	-	pF
Output Capacitance	C _{oSS}		-	489	-	pF
Reverse Transfer Capacitance	C _{rSS}		-	364	-	pF
Total Gate Charge	Q _g	V _{DS} =-30V, I _D =-20A, V _{GS} =-10V	-	85.5	-	nC
Gate-Source Charge	Q _{gs}		-	12.1	-	nC
Gate-Drain Charge	Q _{gd}		-	23.2	-	nC
Gate Plateau Voltage	V _{plateau}		-	-2.9	-	V
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{GS} =-10V, V _{DD} =-30V, I _D =-30A, R _G =3Ω	-	9.8	-	nS
Turn-on Rise Time	t _r		-	6.1	-	nS
Turn-off Delay Time	t _{d(off)}		-	44	-	nS
Turn-off Fall Time	t _f		-	12.7	-	nS
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Continuous Current	I _S	-	-	-	-70	A
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-1A	-	-	-1.2	V
Body Diode Reverse Recovery Time	T _{rr}	I _F =-20A,	-	50	-	nS
Body Diode Reverse Recovery Charge	Q _{rr}	dI/dt=100A/μs	-	69	-	nC

The EAS Test condition is V_{DD}=-30V, V_{GS}=-10V, L=0.5mH, R_G=25Ω



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Typical Output Characteristics

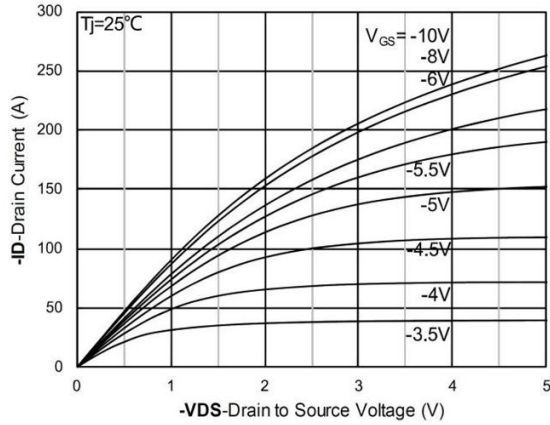


Fig 2. Forward Characteristics of Reverse Diode

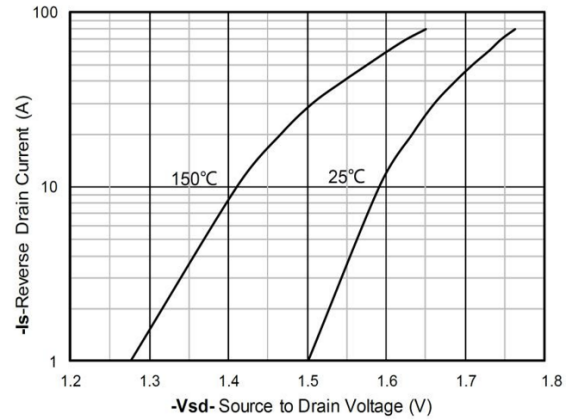


Fig 4. Capacitance Characteristics

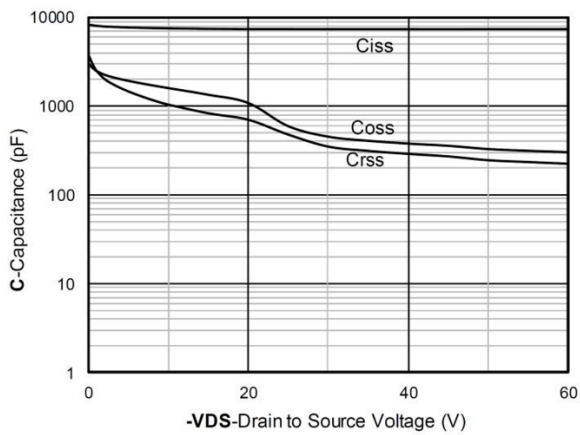


Fig 3. Gate Charge

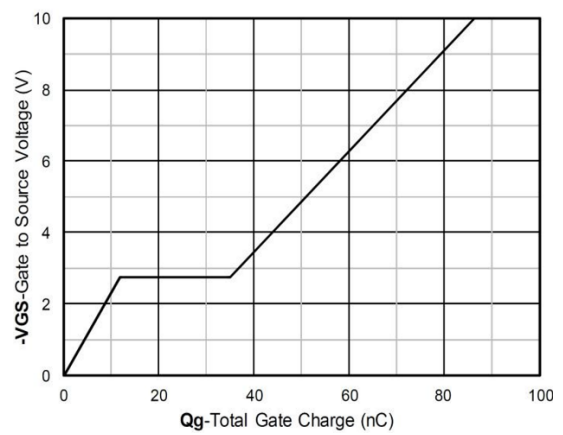


Fig 5. $R_{DS(on)}$ vs. Drain Current

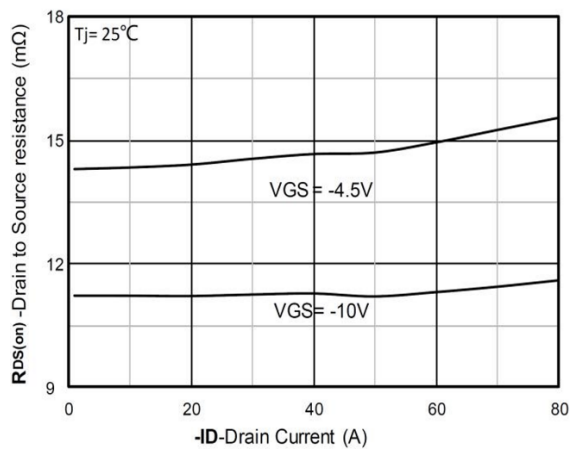


Fig 6. Normalized On-Resistance

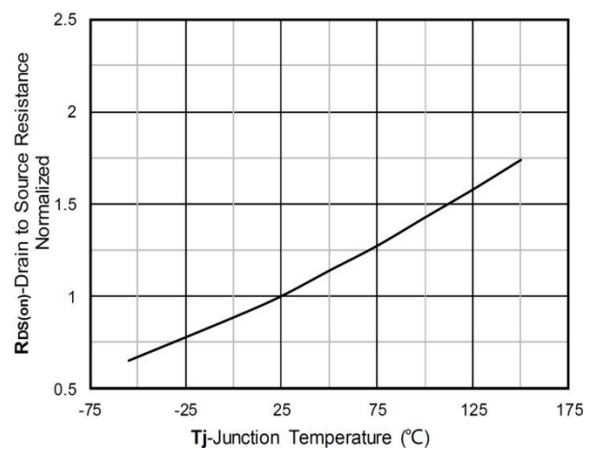




Fig 7. Current Dissipation

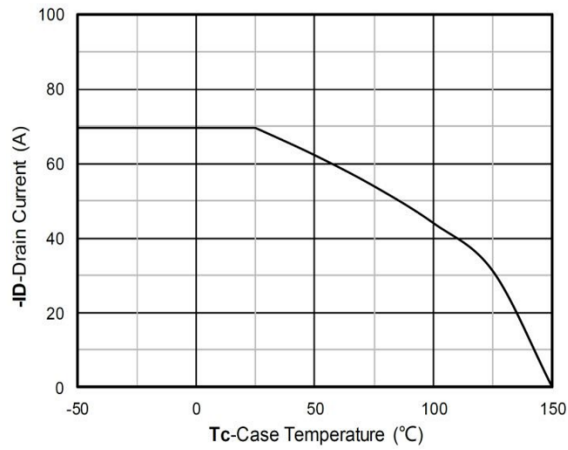


Fig 8. Power Dissipation

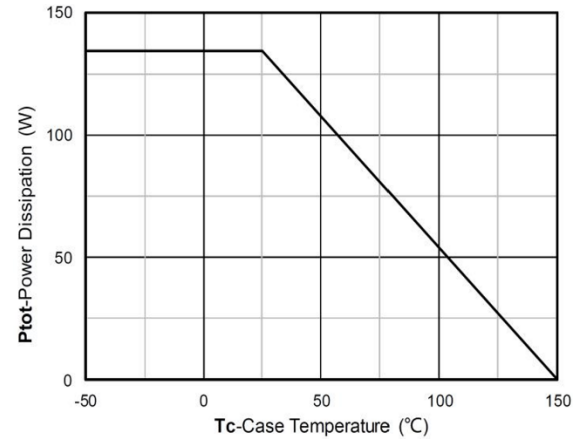


Fig 9. Normalized Breakdown Voltage

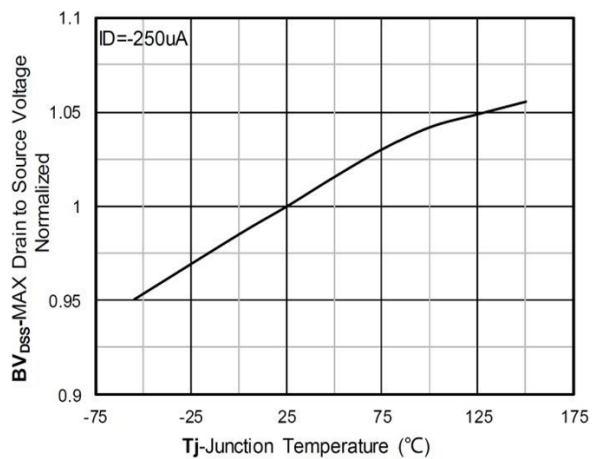


Fig 10. Normalized Threshold Voltage

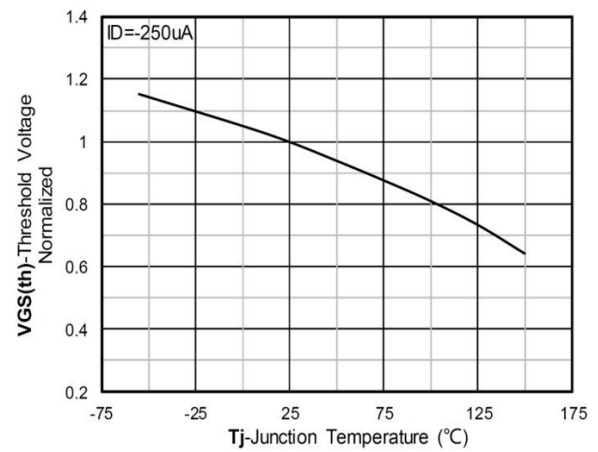


Fig 11. Safe Operation Area

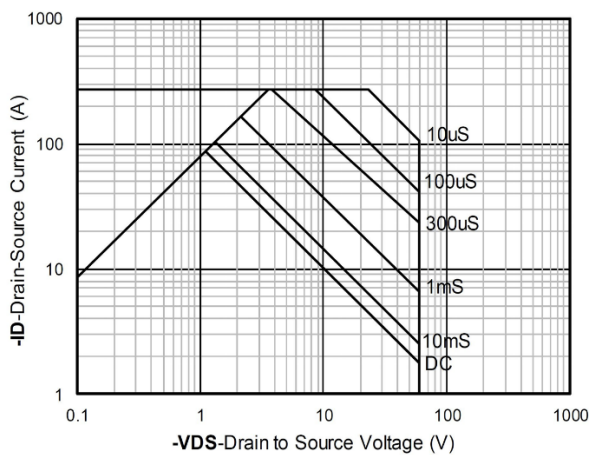
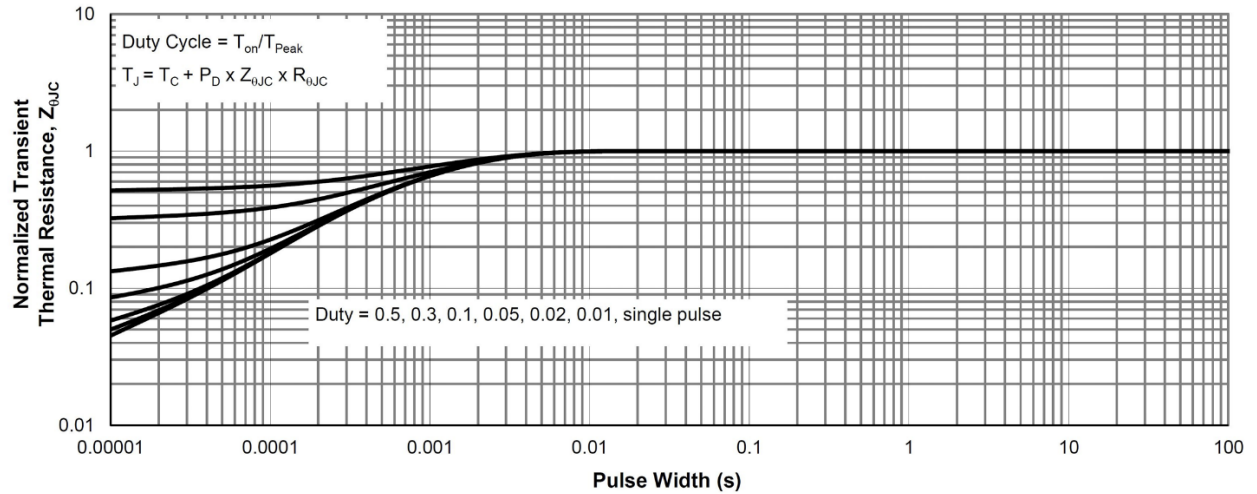




Fig 12. Normalized Maximum Transient Thermal Impedance





Test Circuit & Waveform

Fig 13. Gate Charge Test Circuit & Waveform

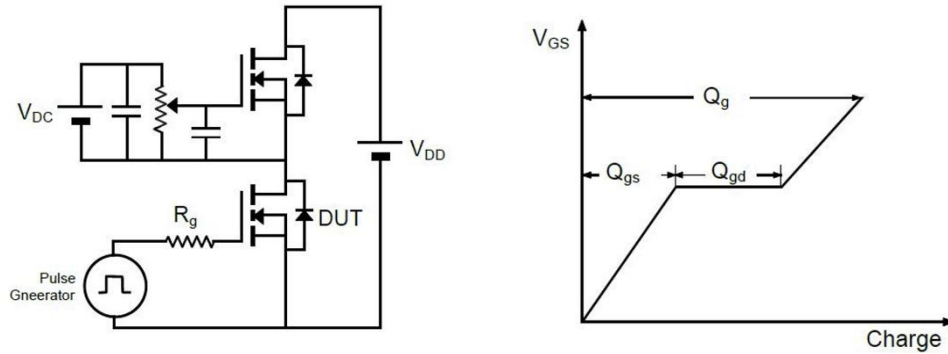


Fig 14. Resistive Load Switching Time Test Circuit & Waveform

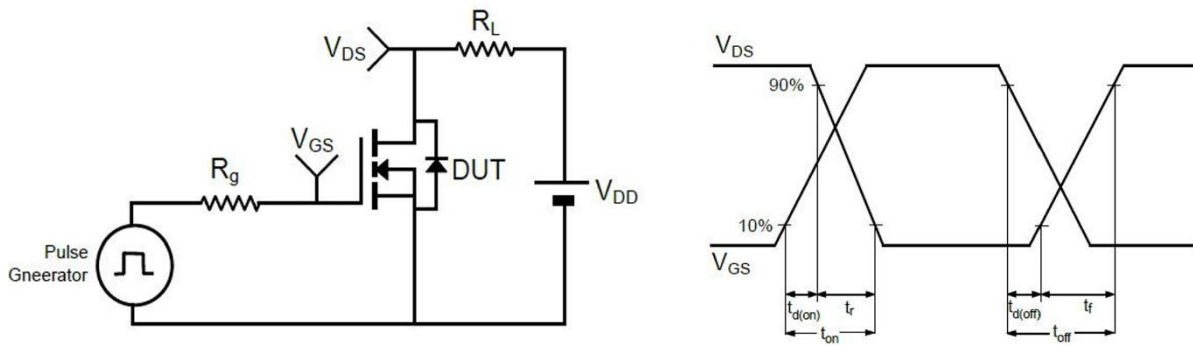


Fig 15. Un-clamped Inductive Load Switching Circuit & Waveform

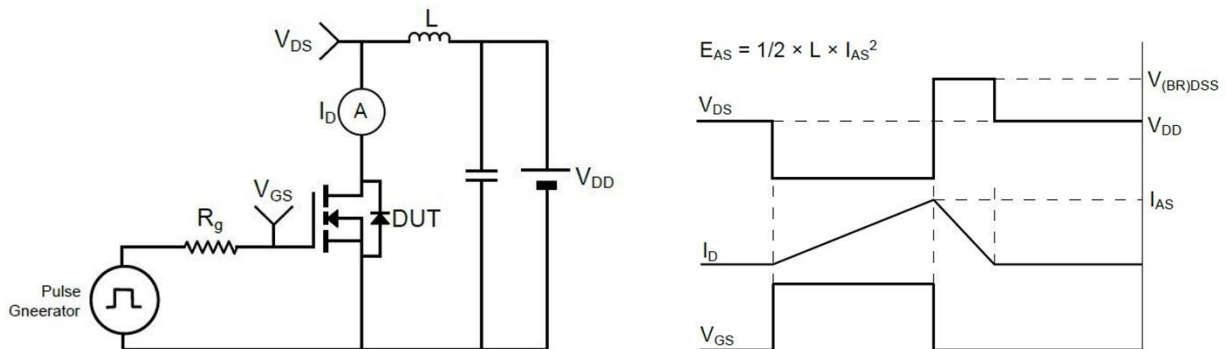
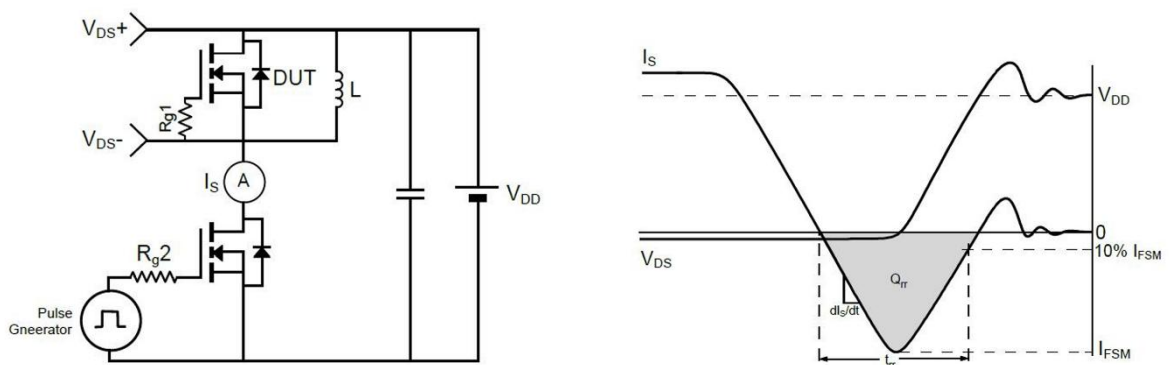


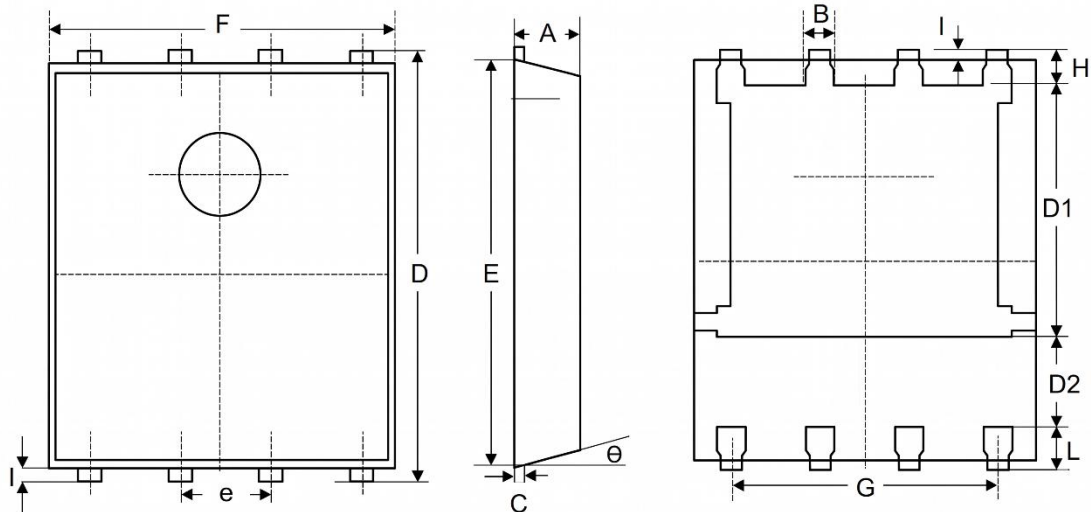
Fig 16. Diode Recovery Test Circuit & Waveform





PACKAGE INFORMATION

Dimension in PDFN8(5x6) (Unit: mm):



Symbol	Millimeters	
	Min	Max
A	0.900	1.100
B	0.330	0.510
C	0.200	0.300
D	5.900	6.100
D1	3.380	3.780
D2	1.100	-
E	5.700	5.800
e	1.270 BSC	
F	4.800	5.000
G	0.361	0.396
H	0.410	0.610
I	0.060	0.200
L	0.510	0.710
θ	0°	12°

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