PJY65R180

650V/20A N-Channel Junction Power MOSFET

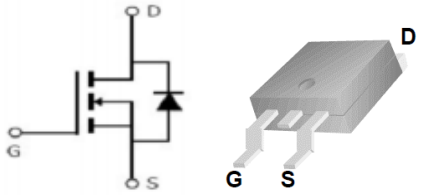
Features

- New technology for high voltage device·
- Low on-resistance and low conduction losses
- Small package
- Ultra Low Gate Charge cause lower driving requirements
- 100% Avalanche Tested

BVDSS	650	V
ID	20	A
RDSON@VGS=10V	0.149	Ω

Applications

- Power factor correction（PFC）
- Switched mode power supplies(SMPS)
- Uninterruptible Power Supply（UPS）



TO-263

Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PJY65R180	TO-263	PJY65R180	13inch	800PCS	6400PCS
			/	50PCS	5000PCS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		650	V
V_{GS}	Gate-Source Voltage		±30	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	TC =25°C	20	A
Mounted on Large Heat Sink				
E_{AS}	Single Pulse Avalanche Energy (Note1)		390	mJ
I_{DM}	Pulse Drain Current Tested (Sillicon Limit) (Note2)	TC =25°C	60	A
I_D	Continuous Drain current	TC =25°C	20	A
P_D	Maximum Power Dissipation	TC =25°C	188	W
$R_{\theta JC}$	Thermal Resistance Junction-to-Case (Note3)		0.66	°C/W

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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain- Source Breakdown Voltage	VGS=0V ID=250μA	650	--	--	V
I_{DSS}	Zero Gate Voltage Drain current	VDS=650V,VGS=0V	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	VGS=±30V,VDS=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	VDS=VGS,ID=250μA	2	--	4	V
$R_{DS(ON)}$	Drain-Source On-State Resistance (Note4)	VGS=10V, ID=10A	--	0.149	0.18	Ω
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note5)						
C_{iss}	Input Capacitance	VDS=100V, VGS=0V, F=100KHz	--	1670	--	pF
C_{oss}	Output Capacitance		--	83.1	--	pF
C_{rss}	Reverse Transfer Capacitance		--	0.8	--	pF
Q_g	Total Gate Charge	VDS=520V, ID=10A, VGS=10V	--	44	--	nC
Q_{gs}	Gate-Source Charge		--	9	--	nC
Q_{gd}	Gate-Drain Charge		--	18	--	nC
Switching Characteristics (Note5)						
$t_{d(on)}$	Turn-on Delay Time	VDD=520V, ID=20A, VGS=10V RG=25Ω	--	49.8	--	nS
t_r	Turn-on Rise Time		--	61.4	--	nS
$t_{d(off)}$	Turn-off Delay Time		--	195.8	--	nS
t_f	Turn-off Fall Time		--	55.8	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	IS=20A,VGS=0V	--	--	1.1	V

Note:

1. Limited by TJmax, starting TJ = 25° C, RG = 25Ω, VD =50V, VGS =10V. Part not recommended for use above this value.
2. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. Surface Mounted on FR4 Board, t ≤ 10 sec.
4. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
5. Guranteed by design, not subject to production testing.

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Typical Characteristics

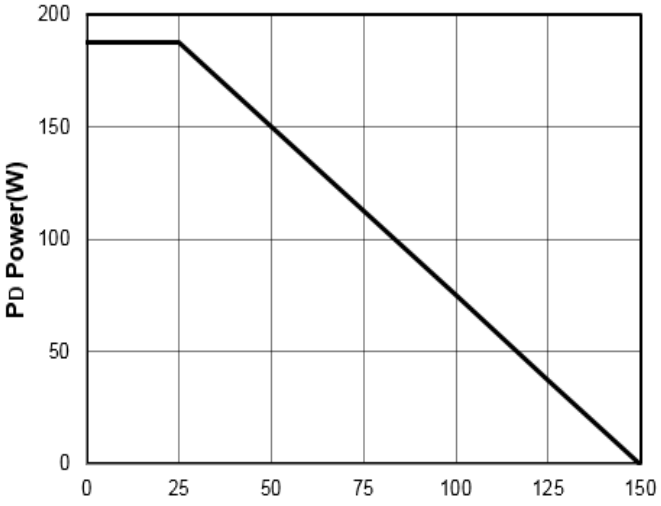

Figure1：T_J Junction Temperature（°C）

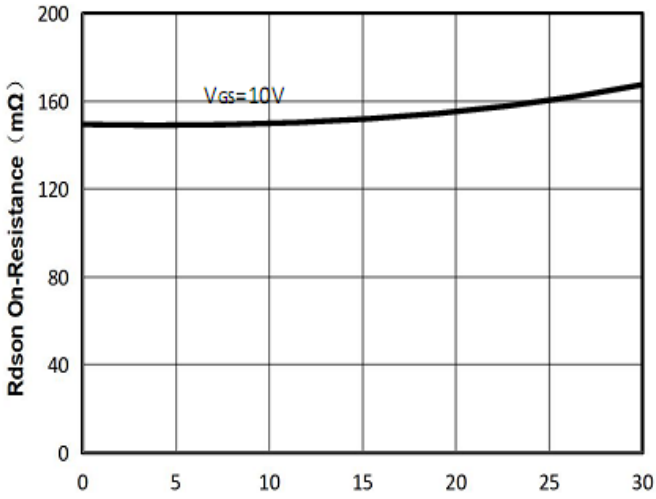

Figure2：I_D Drain Current（A）

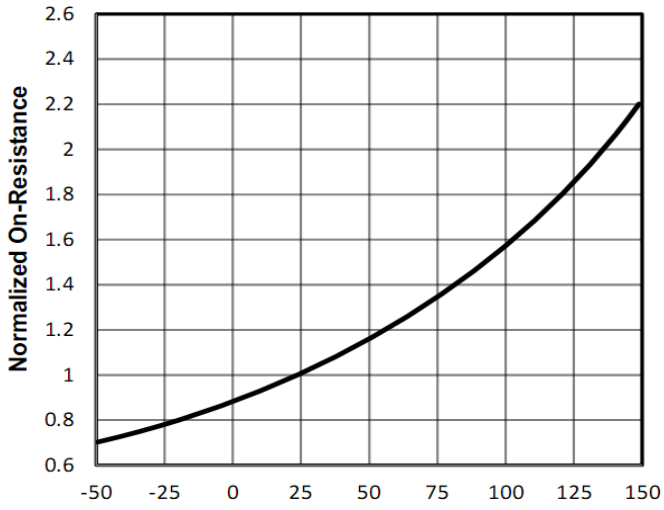

Figure3：T_J Junction Temperature（°C）

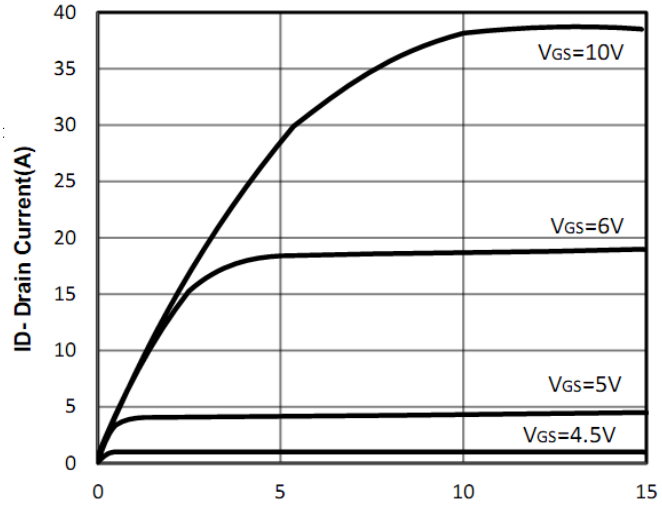

Figure4：V_{DS} Drain-Source Voltage（V）

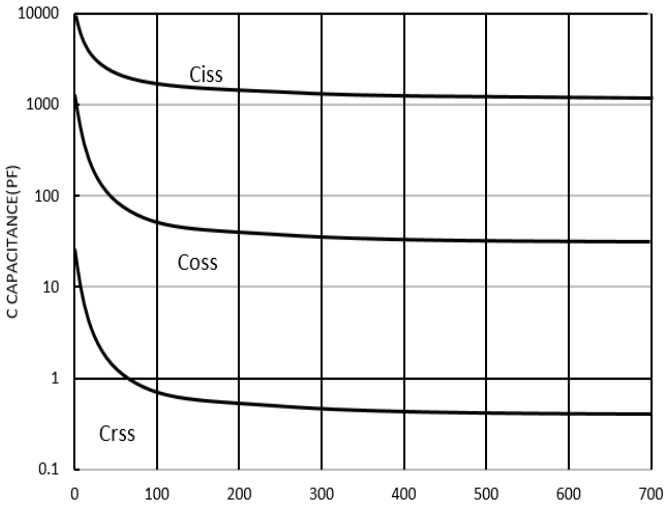

Figure5：V_{DS} Drain-Source Voltage（V）

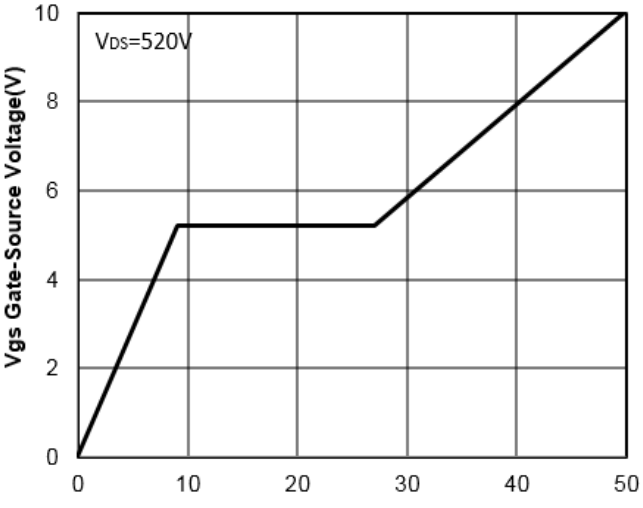

Figure6：Qg Gate Charge（nC）

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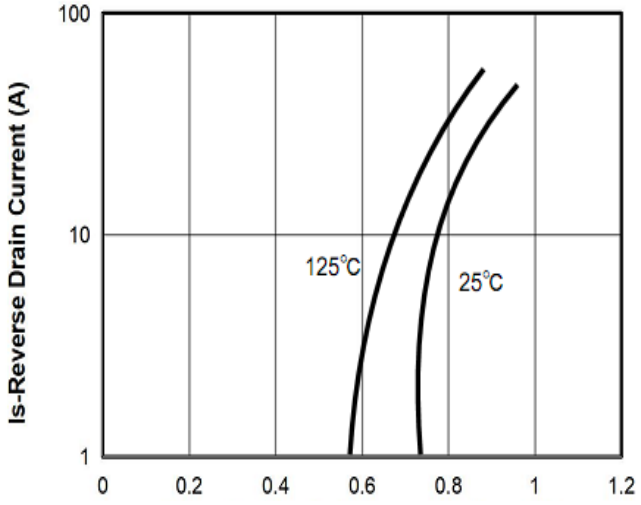

Figure7：Vsd Source-Drain Voltage（V）

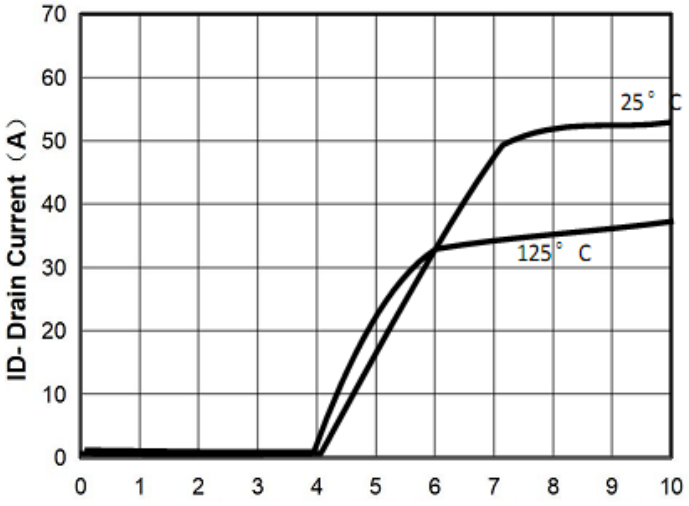

Figure8：Vgs Gate-Source Voltage（V）

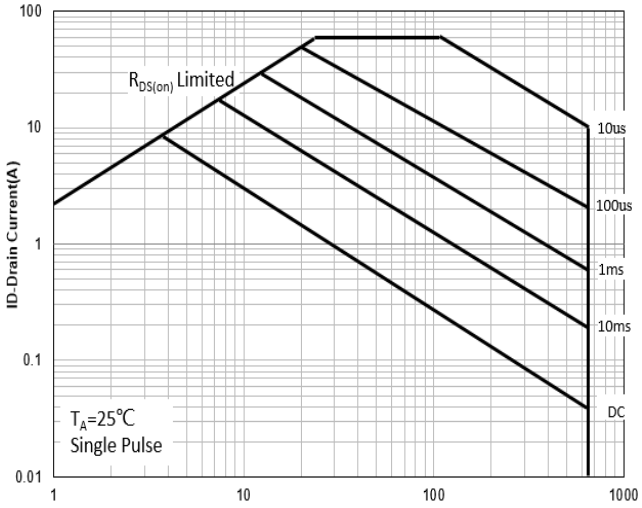

Figure9：VDS Drain -Source Voltage（V）

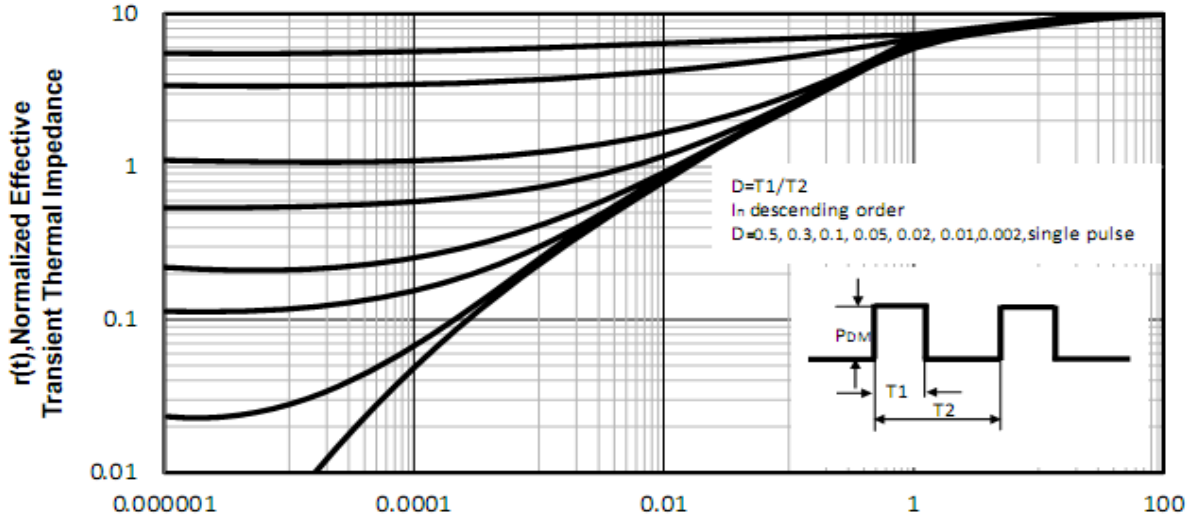

Figure10：Square Wave Pulse Duration（sec）

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Test Circuit and Waveform:

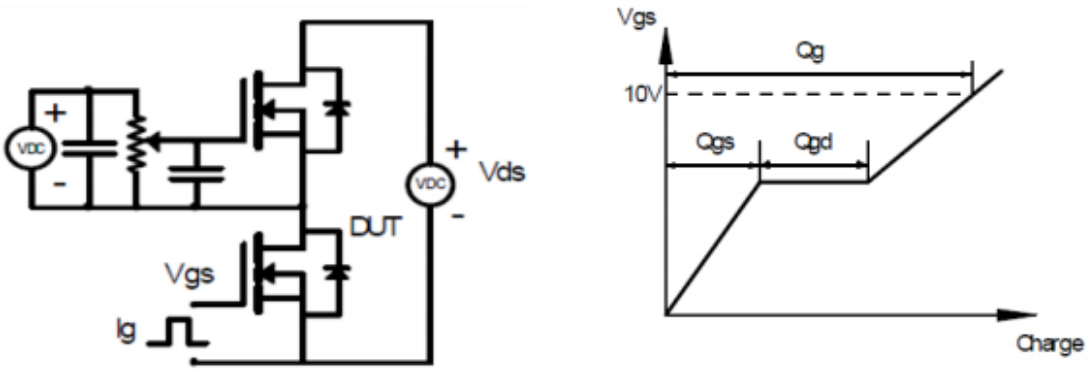

Figure A Gate Charge Test Circuit &Waveforms

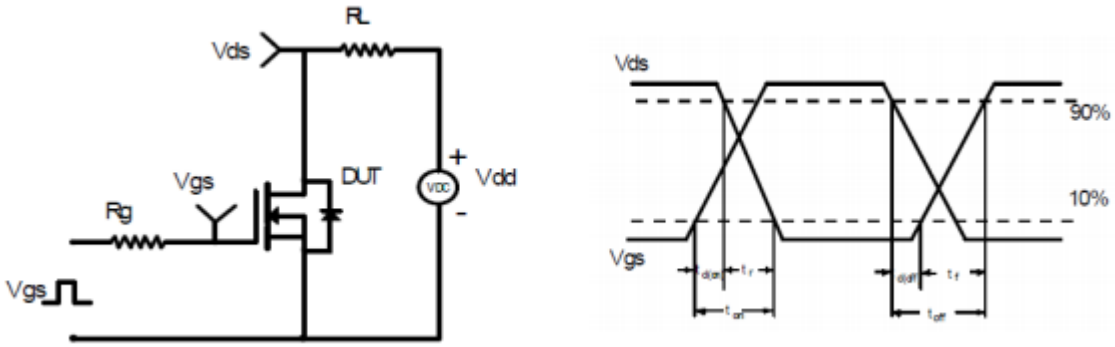

Figure B Switching Test Circuit & Waveforms

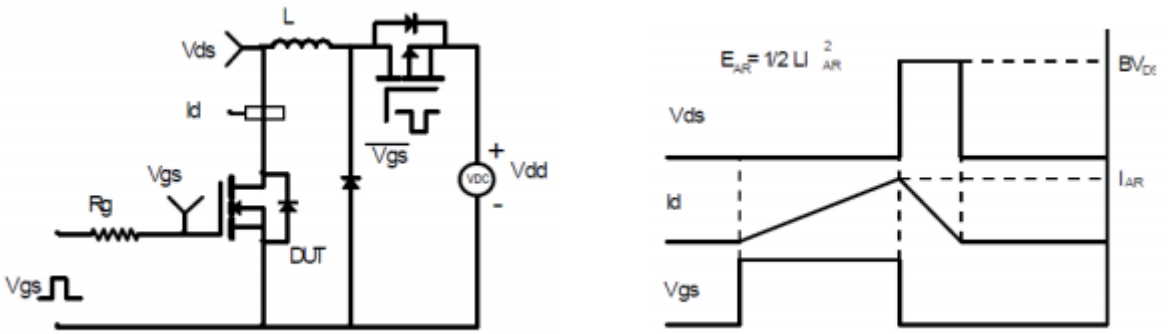

Figure C Unclamped Inductive Switching Circuit & Waveforms

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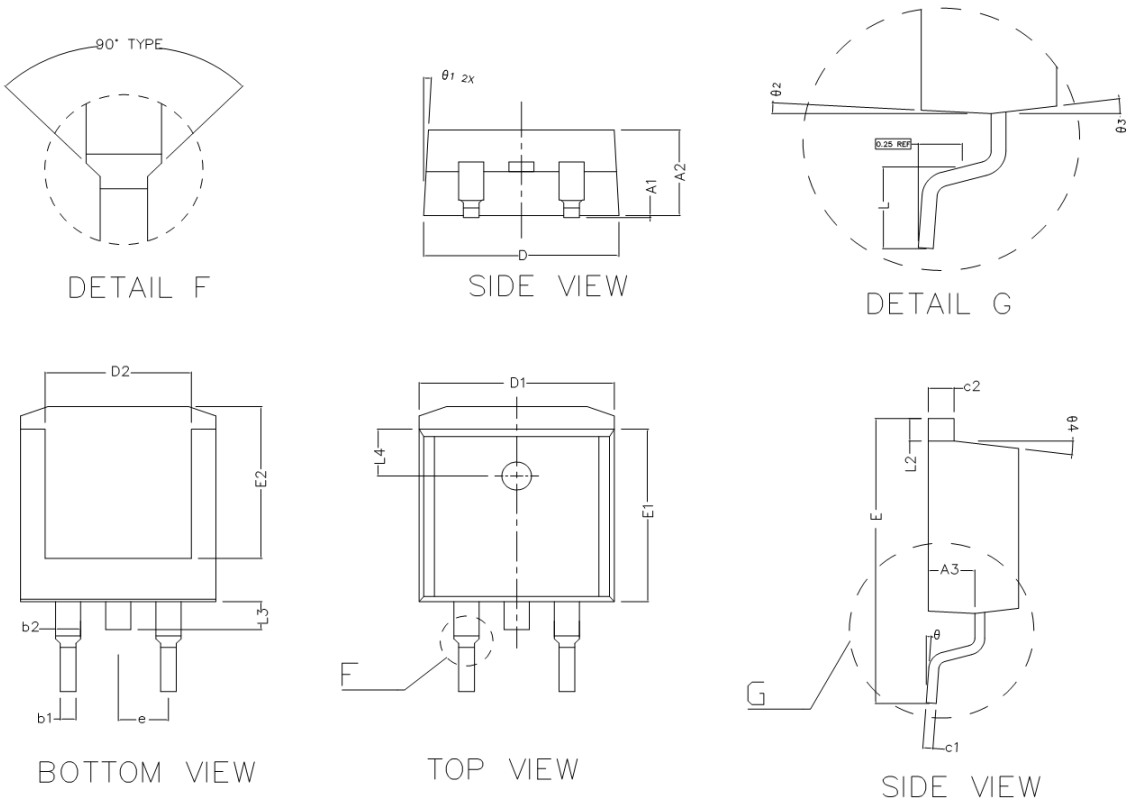
TO-263 Package Outline Dimensions (Units: mm)



COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	0.020	0.100	0.200
A2	4.470	4.570	4.670
A3	2.300	2.350	2.400
b1	0.750	0.800	0.850
b2	1.220	1.270	1.320
c1	0.450	0.500	0.550
c2	1.250	1.300	1.350
D	9.900	10.000	10.100
D1	9.880REF		
D2	7.400REF		
E	14.900	15.100	15.300
E1	9.000	9.100	9.200
E2	8.100REF		
e	2.540TYPE		
L	2.100	2.300	2.500
L2	1.100	1.200	1.300
L3	1.300	1.500	1.700
L4	2.50 TYPE		
θ1	3° TYPE		
θ2	3° TYPE		
θ3	7° TYPE		
θ4	7° TYPE		
θ	0 ~ 8°		