PGD08N055

85V/100A N-Channel MOSFET

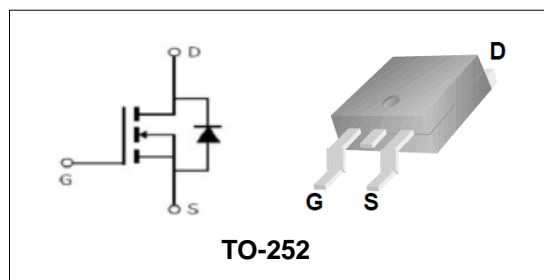### Features
- N-channel, normal level
- Very low on-resistance RDS(on)

BVDSS	85	V
ID	100	A
RDSON@VGS=10V	4.3	mΩ

Applications
- Industrial power supplies
- Boost converters
- Rectifier
- Telecom
- Battery management system

TO-252

Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PGD08N055	TO-252	PGD08N055	13inch	2500PCS	50000PCS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		85	V
V_{GS}	Gate-Source Voltage		±20	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	100	A
Mounted on Large Heat Sink				
E_{AS}	Single Pulse Avalanche Energy (Note1)		342	mJ
I_{DM}	Pulse Drain Current Tested (Sillicon Limit) (Note2)	TC =25°C	400	A
I_D	Continuous Drain current	TC =25°C	100	A
P_D	Maximum Power Dissipation	TC =25°C	105	W
$R_{θJc}$	Thermal Resistance Junction−to−Case (Note3)		0.71	°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	85	--	--	V
I_{DSS}	Zero Gate Voltage Drain current	VDS=80V,VGS=0V	--	--	1	µA
I_{GSS}	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	VDS=VGS,ID=250µA	2	3	4	V
$R_{DS(ON)}$	Drain-Source On-State Resistance (Note4)	VGS=10V, ID=50A	--	4.3	5.5	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note5)						
C_{iss}	Input Capacitance	VDS=40V,	--	2924	--	pF
C_{oss}	Output Capacitance	VGS=0V,	--	771	--	pF
C_{rss}	Reverse Transfer Capacitance	F=1MHz	--	15	--	pF
Q_g	Total Gate Charge	VDS=40V,	--	48	--	nC
Q_{gs}	Gate-Source Charge	ID=50A,	--	13	--	nC
Q_{gd}	Gate-Drain Charge	VGS=10V	--	19	--	nC
Switching Characteristics (Note5)						
$t_{d(on)}$	Turn-on Delay Time	VDD=40V,	--	19	--	nS
t_r	Turn-on Rise Time	ID=50A,	--	33	--	nS
$t_{d(off)}$	Turn-off Delay Time	VGS=10V	--	29	--	nS
t_f	Turn-off Fall Time	RG=4.7Ω	--	19	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltge	IS=50A,VGS=0V	--	--	1.2	V
t_{rr}	Reverse Recovery Time	I_S=50A,VGS=0V, dl/dt=100A/us	--	52	--	nS
Q_{rr}	Reverse Recovery Charge		--	73	--	nC

Note:

1. Limited by TJmax, starting TJ = 25° C, RG =25Ω, VDS =20V, 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.

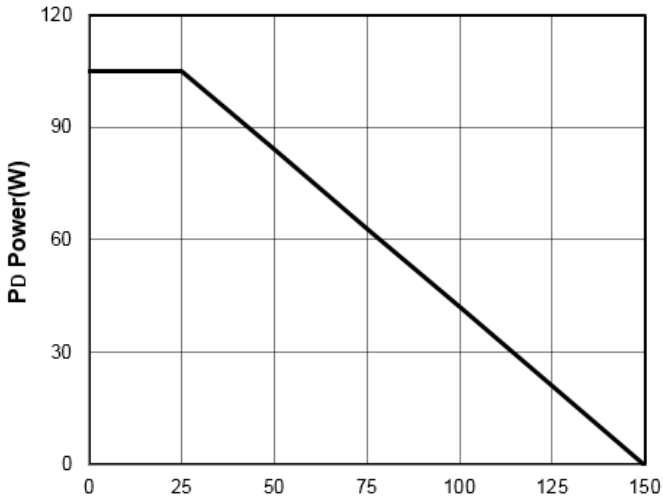**85V/100A N-Channel MOSFET**

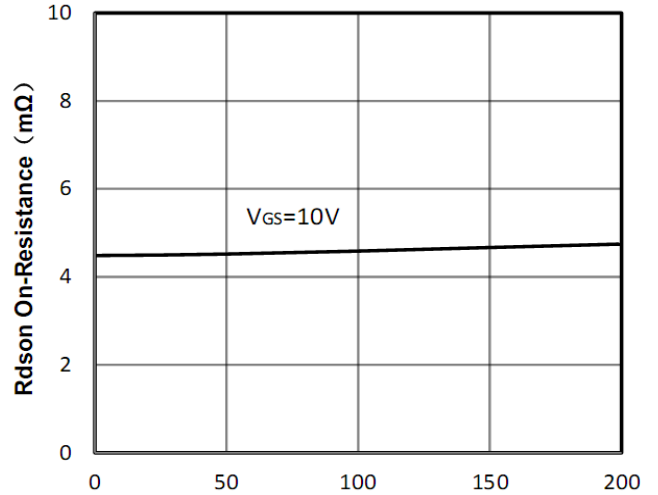### Typical Characteristics

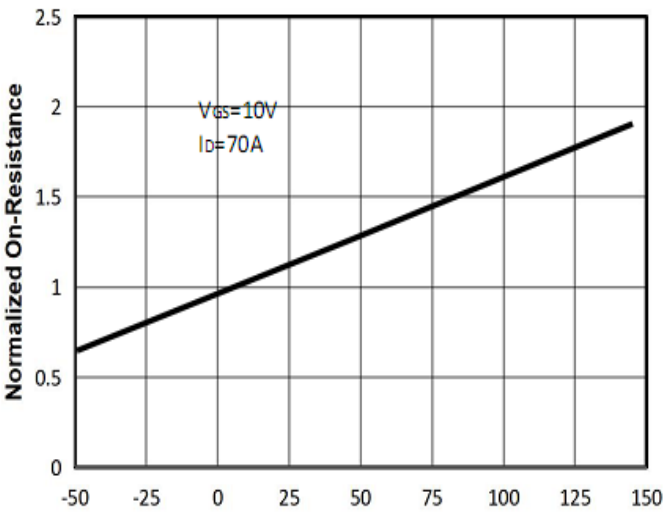Figure1：T$_J$ Junction Temperature（°C）

Figure2：I$_D$ Drain Current（A）

Figure3：T$_J$ Junction Temperature（°C）
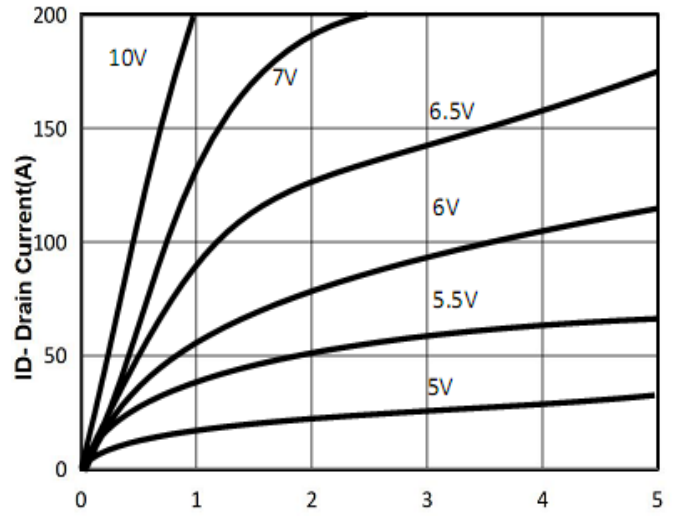
Figure4：V$_{DS}$ Drain-Source Voltage（V）
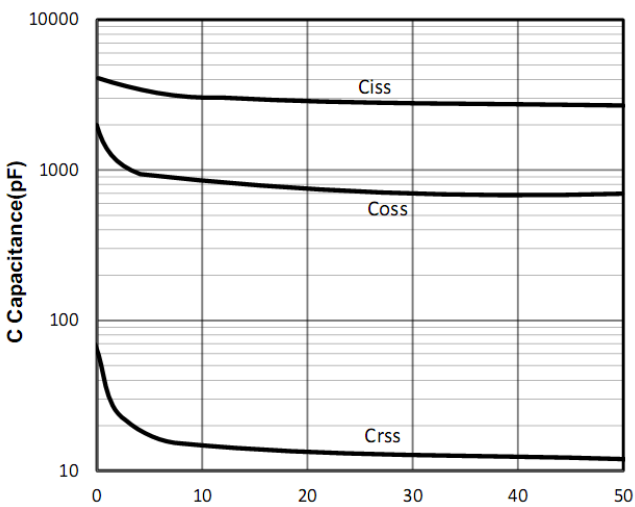
Figure5：V$_{DS}$ Draun-Source Voltage（V）
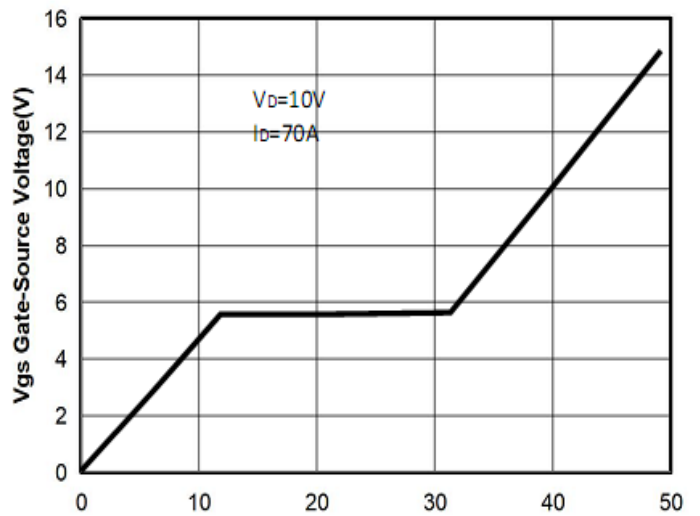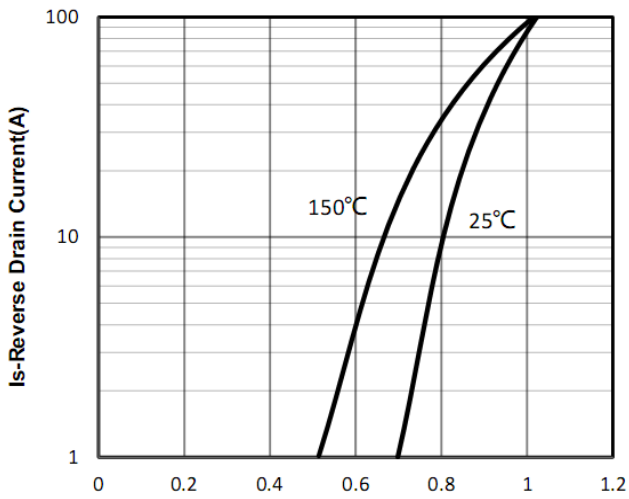
Figure6：Qg Gate Charge（nC）

Figure7：Vsd Source-Drain Voltage（V）
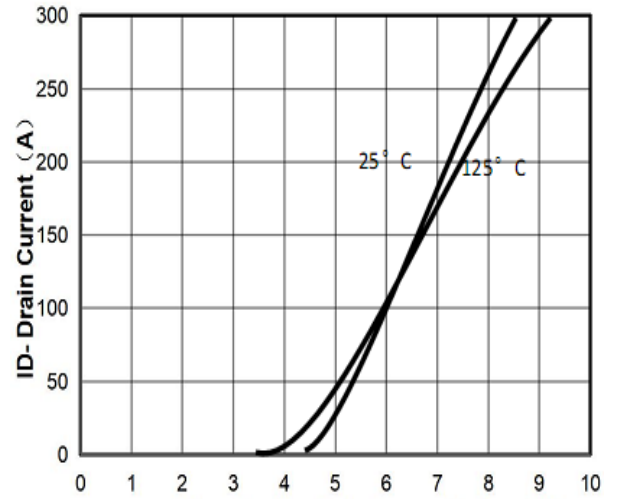
Figure8：Vgs Gate-Source Voltage（V）
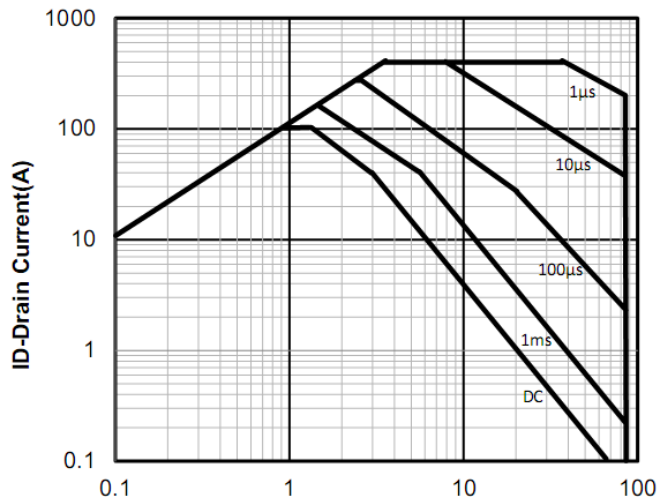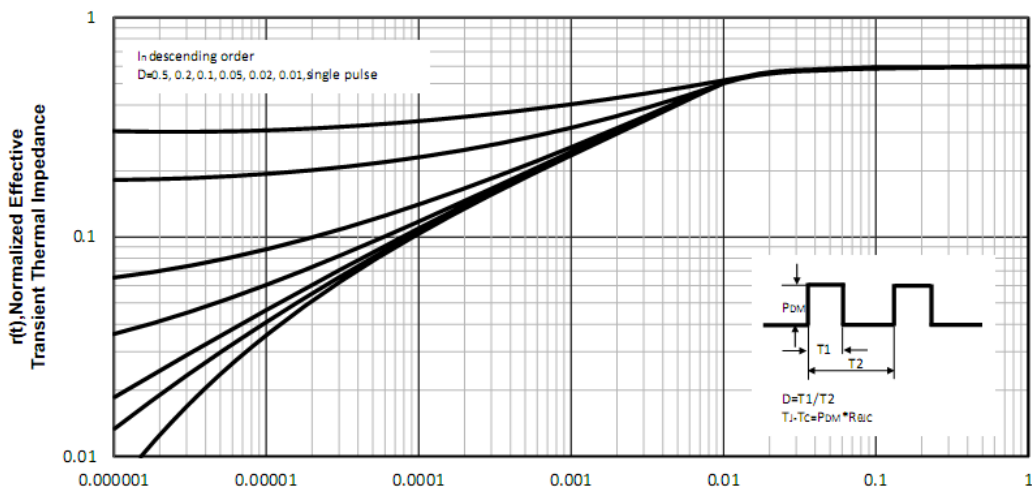

Figure9：Vds Drain -Source Voltage（V）

Figure10：Square Wave Pulse Duration（sec）

4

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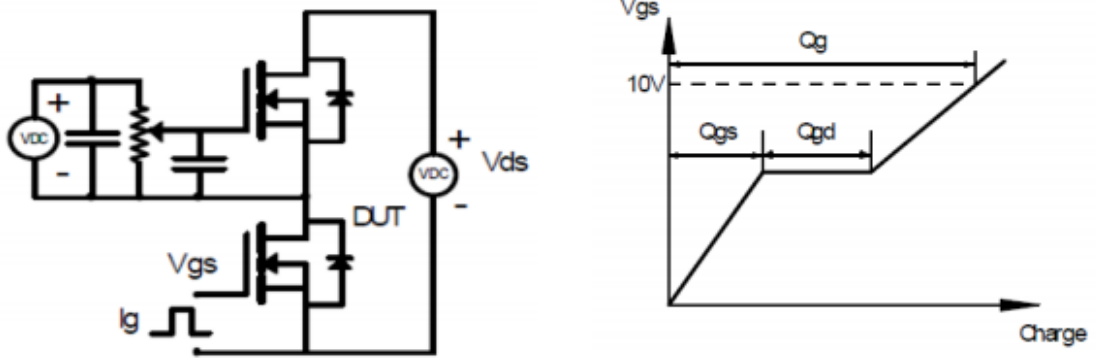
Test Circuit and Waveform:

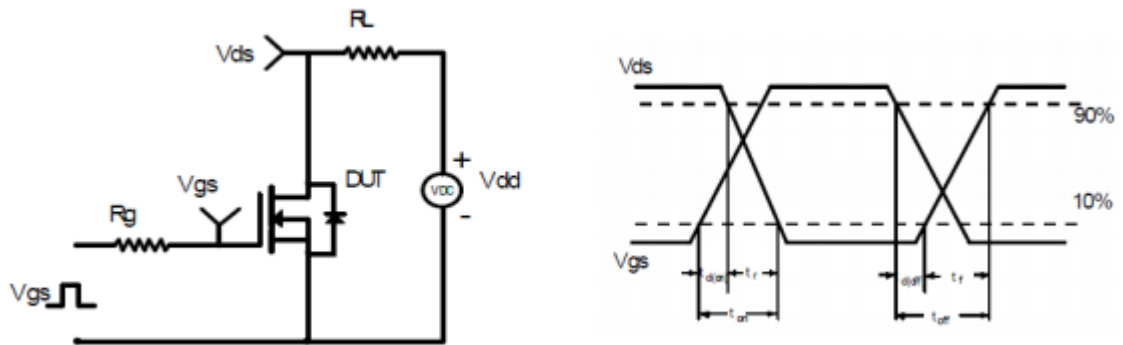**Figure A   Gate Charge Test Circuit &Waveforms**
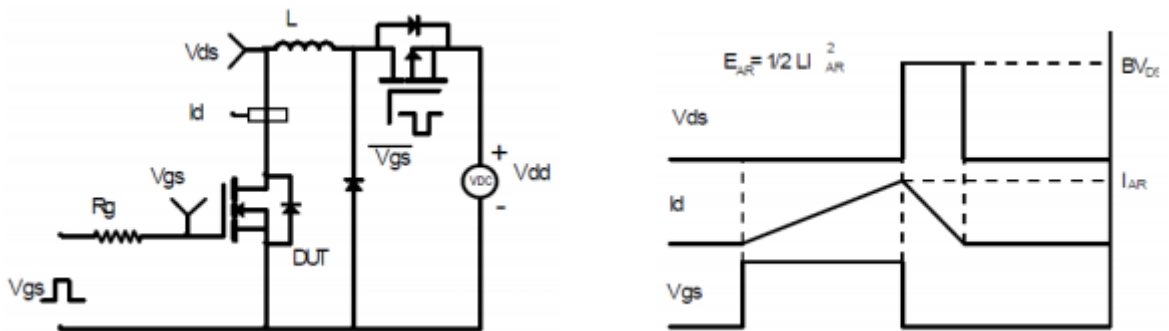

Figure B   Switching Test Circuit & Waveforms

Figure C   Unclamped Inductive Switching Circuit & Waveforms

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TO-252 Package Outline Dimensions (Units: mm)

BOTTOM VIEW

TOP VIEW

SIDE VIEW

DETAIL F

SIDE VIEW

DETAIL G
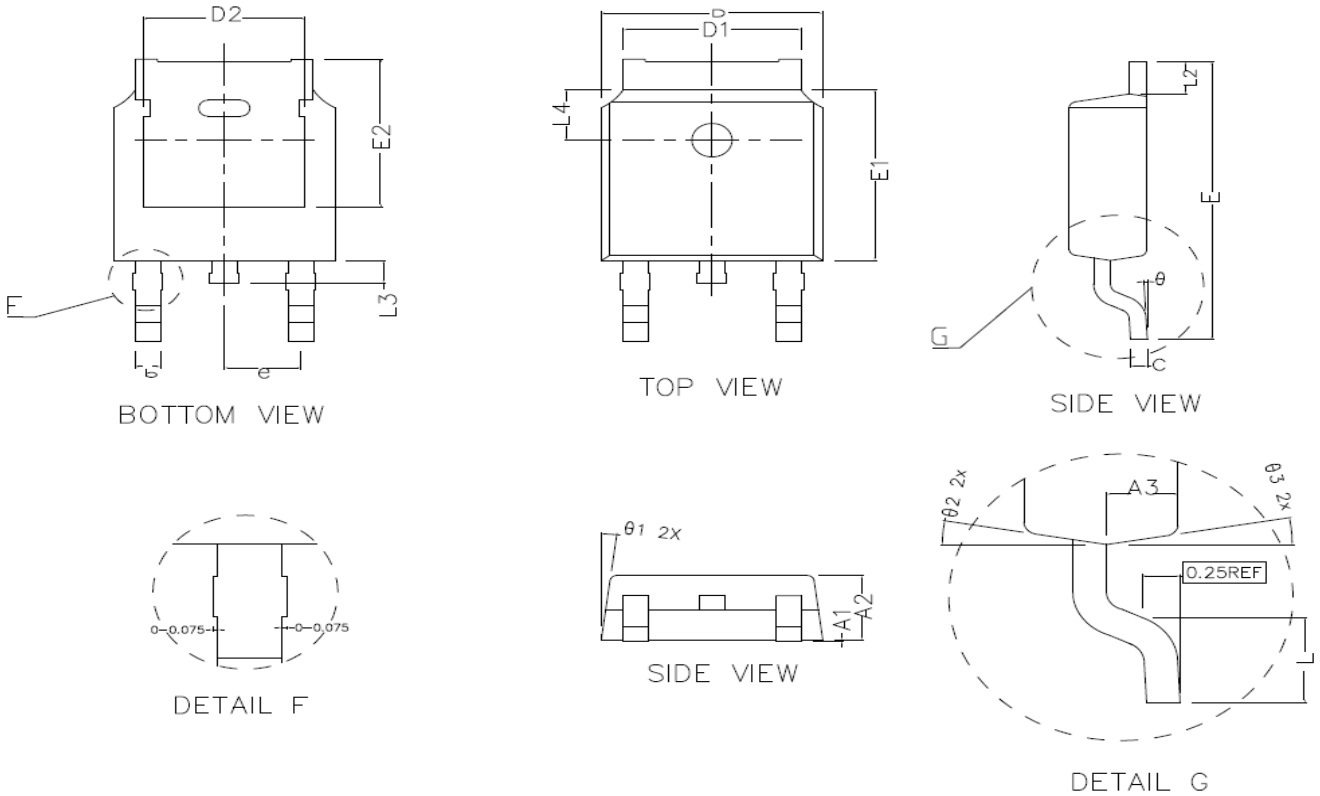
COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	0.000	0.100	0.150
A2	2.200	2.300	2.400
A3	1.020	1.070	1.120
b	0.710	0.760	0.810
c	0.460	0.508	0.550
D	6.500	6.600	6.700
D1	5.330REF		
D2	4.830REF		
E	9.900	10.100	10.300
E1	6.000	6.100	6.200
E2	5.600REF		
e	2.286TYPE		
L	1.400	1.550	1.700
L2	1.10REF		
L3	0.80REF		
L4	1.80REF		
θ	0~8°		
θ1	7° TYPE		
θ2	10° TYPE		
θ3	10° TYPE		