



## -30V/-10A P-Channel Enhancement Mode MOSFET

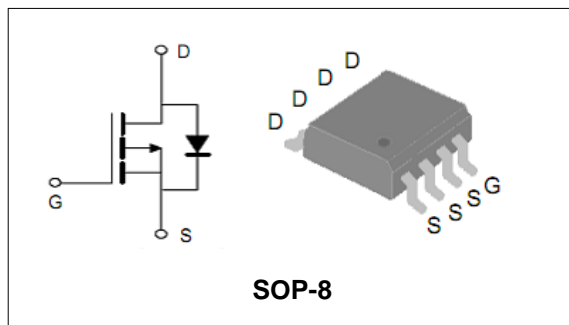
### Features

- -5V Logic Level Control
- Dual P-Channel SOP8 Package

BVDSS	-30	V
ID	-10	A
RDSON@VGS=-4.5V	22	mΩ
RDSON@VGS=-10V	17	mΩ

### Applications

- PWM applications
- Load switch
- Power management



### Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PTS30P10	SOP-8	PTS30P10	13inch	3000PCS	48000PCS

### Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
<b>Common Ratings (TC=25°C Unless Otherwise Noted)</b>			
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	-30	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	$T_A = 25^\circ\text{C}$ -10	A
<b>Mounted on Large Heat Sink</b>			
$I_{DM}$	Pulse Drain Current Tested (Silicon Limit) (Note1)	$T_A = 25^\circ\text{C}$ -50	A
$I_D$	Continuous Drain current	$T_A = 25^\circ\text{C}$ -10	A
$P_D$	Maximum Power Dissipation	$T_A = 25^\circ\text{C}$ 1.5	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient (Note2)	83	°C/W

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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
<b>Static Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
V <sub>(BR)DSS</sub>	Drain- Source Breakdown Voltage	VGS=0V ID=-250μA	-30	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain current	VDS=-30V,VGS=0V	--	--	-1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
V <sub>GS(TH)</sub>	Gate Threshold Voltage	VDS=VGS,ID=-250μA	-1	-1.5	-2.5	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance (Note3)	VGS=-10V, ID=-7A	--	17	23	mΩ
		VGS=-4.5V, ID=-5A	--	22	34	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated) (Note4)</b>						
C <sub>iss</sub>	Input Capacitance	VDS= -15V, VGS=0V, F=1MHz	--	1500	--	pF
C <sub>oss</sub>	Output Capacitance		--	178	--	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		--	146	--	pF
Q <sub>g</sub>	Total Gate Charge	VDS= -15V, ID= -6A, VGS= -10V	--	28.7	--	nC
Q <sub>gs</sub>	Gate-Source Charge		--	5.5	--	nC
Q <sub>gd</sub>	Gate-Drain Charge		--	5.4	--	nC
<b>Switching Characteristics (Note4)</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	VDD=-15V, ID=-6A, RG=2.5Ω, VGS=-10V	--	10	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	44	--	nS
t <sub>d(off)</sub>	Turn-off Delay Time		--	54	--	nS
t <sub>f</sub>	Turn-off Fall Time		--	59	--	nS
<b>Source- Drain Diode Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
V <sub>SD</sub>	Forward on voltage (Note3)	IS=-10A,VGS=0V	--	--	-1.2	V

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec
3. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

**Typical Characteristics**



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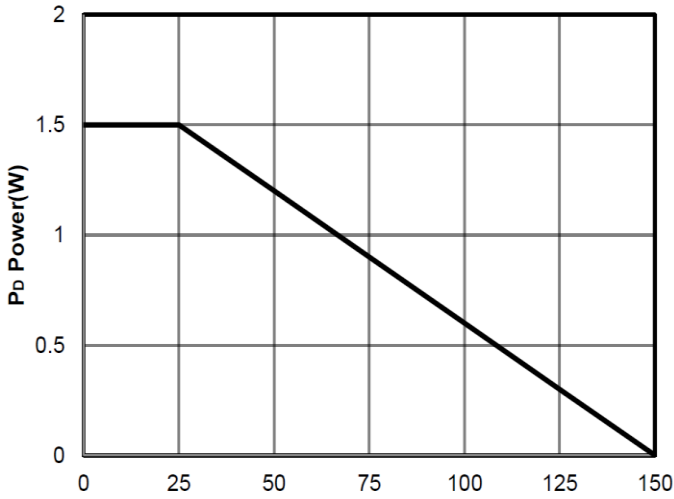


Figure1: Tj Junction Temperature (°C)

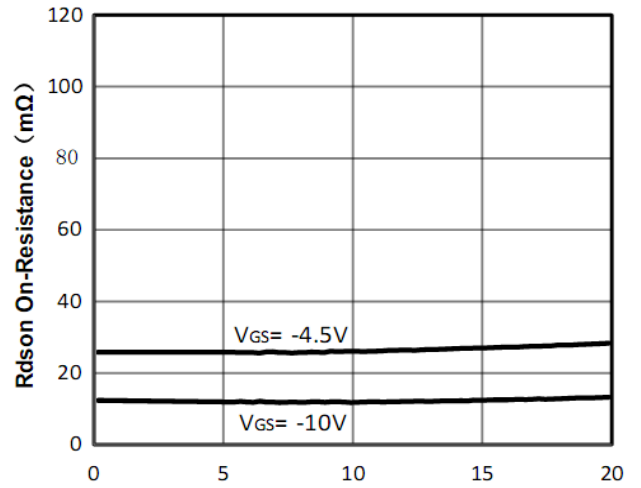


Figure2: -Id Drain Current (A)

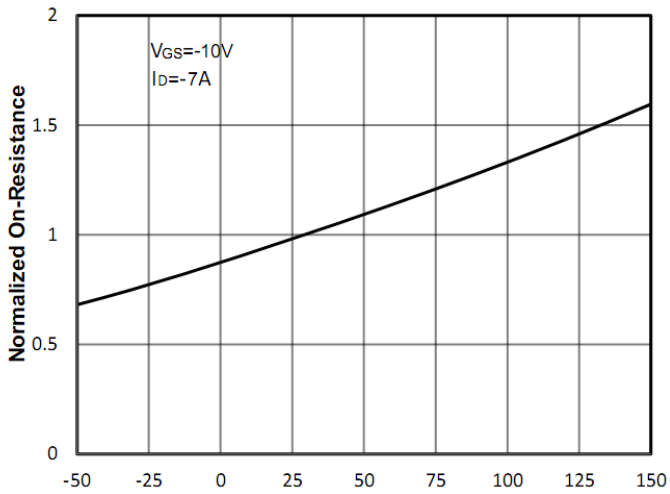


Figure3: Tj Junction Temperature (°C)

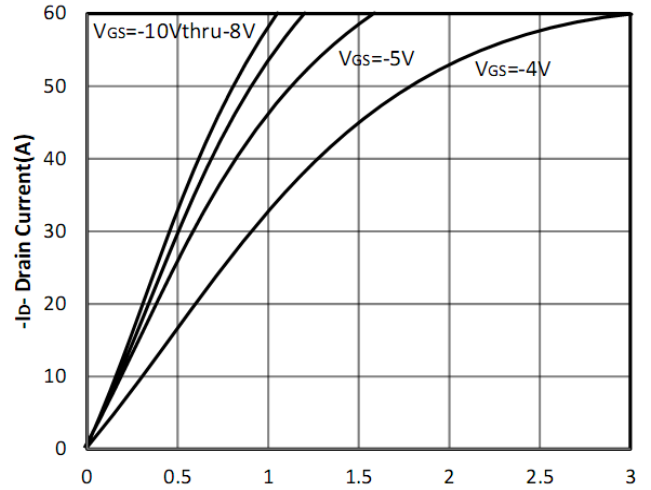


Figure4: -Vds Drain-Source Voltage (V)

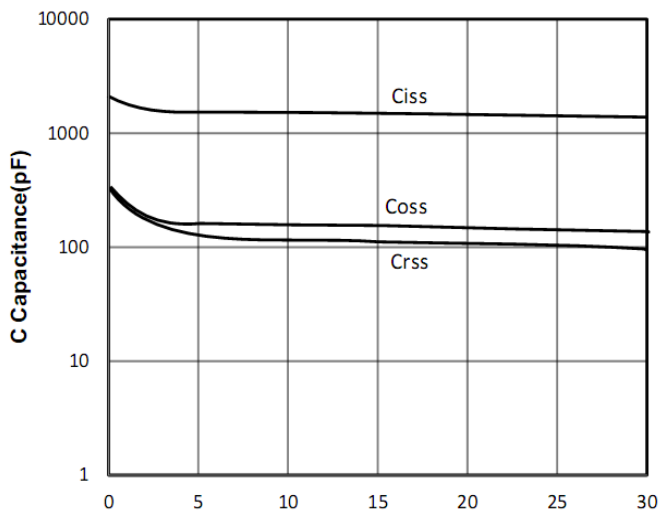


Figure5: -Vds Draun-Source Voltage (V)

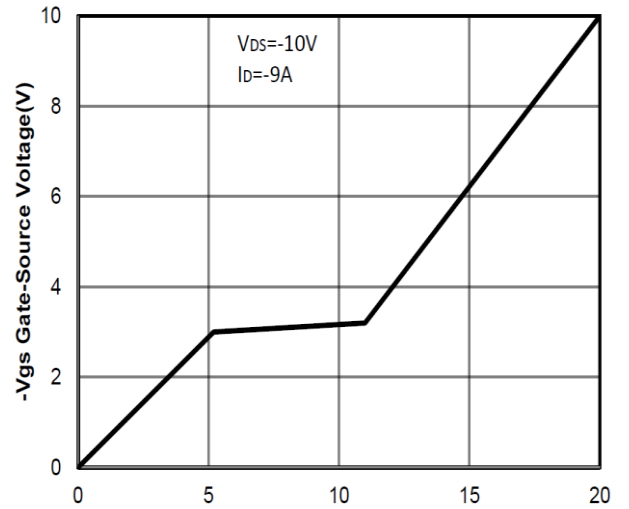


Figure6: -Qg Gate Charge (nC)



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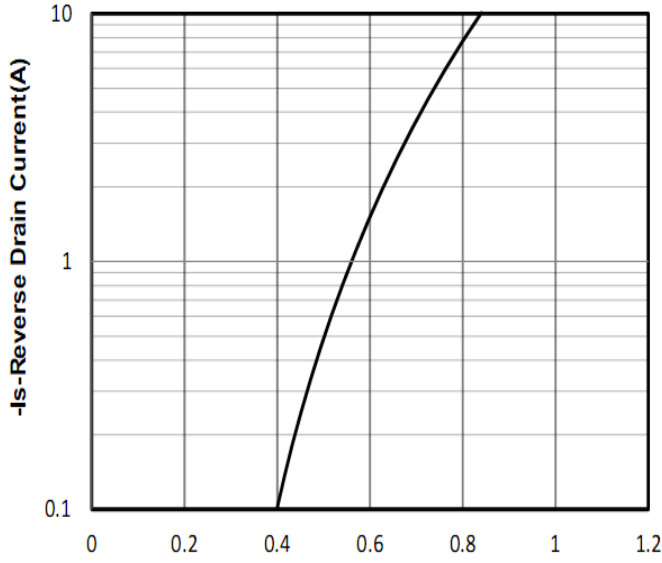


Figure7: -Vs Source-Drain Voltage (V)

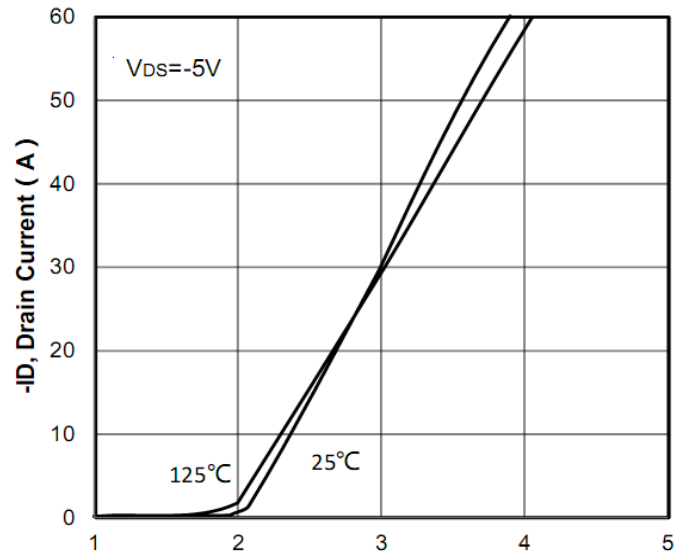


Figure8: -Vgs Gate-Source Voltage (V)

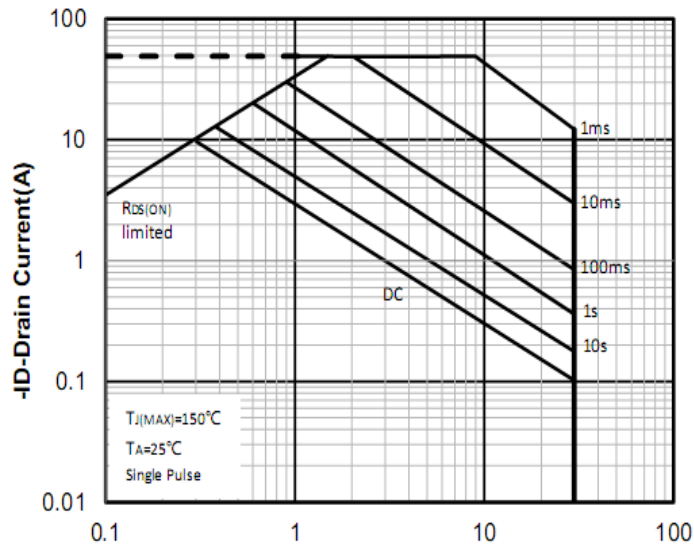


Figure9: -Vds Drain -Source Voltage (V)

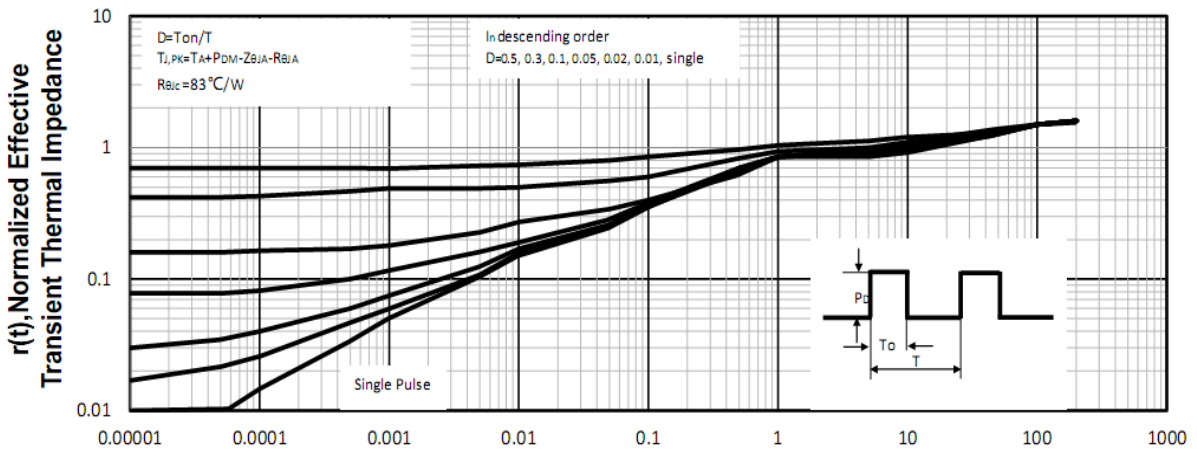
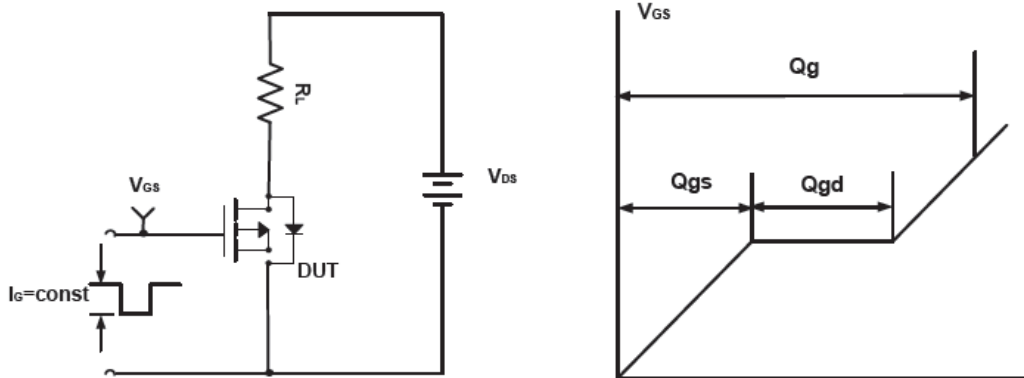
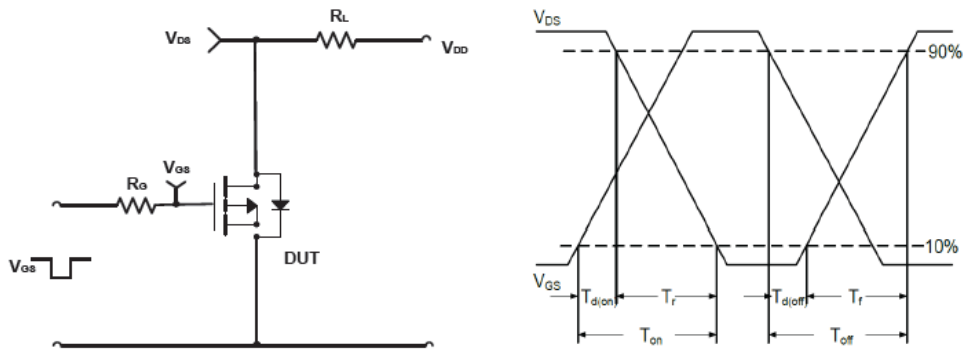
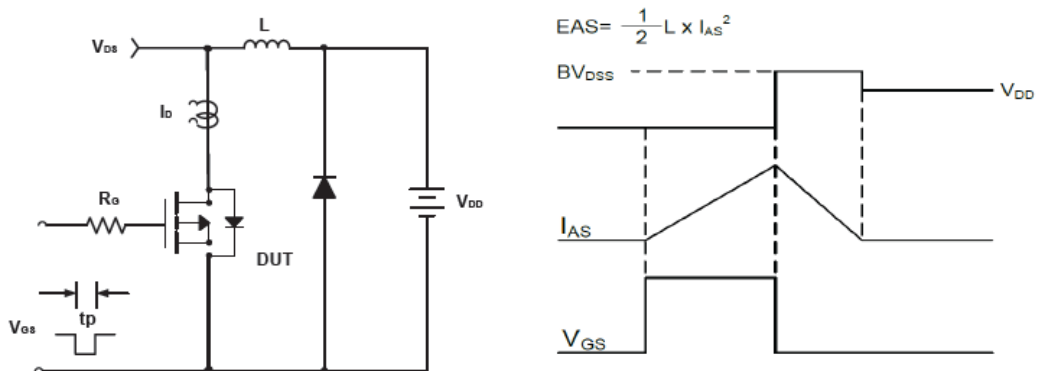
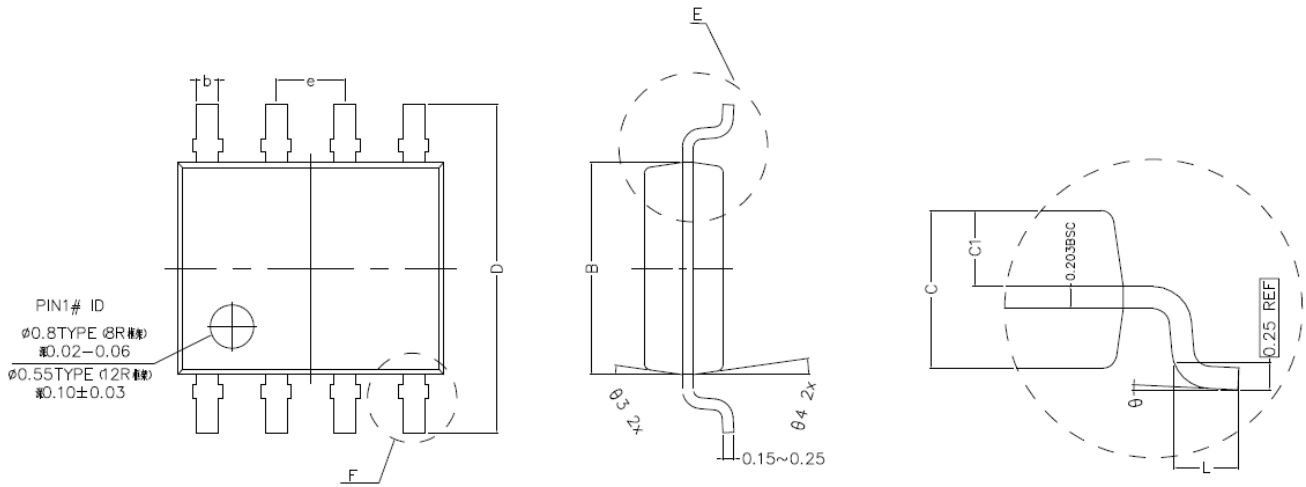


Figure10: Square Wave Pulse Duration (sec)

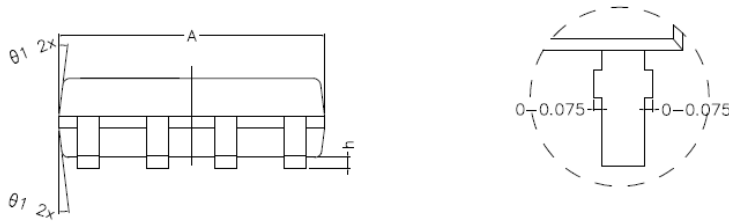
**-30V/-10A P-Channel Enhancement Mode MOSFET**
**Test Circuit and Waveform:**

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

**Figure B Switching Test Circuit & Waveforms**

**Figure C Unclamped Inductive Switching Circuit & Waveforms**

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### SOP-8 Package Outline Dimensions (Units: mm)



DETAIL E



DETAIL F

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	4.800	4.900	5.000
B	3.800	3.900	4.000
C	1.350	1.450	1.550
C1	0.650	0.700	0.750
D	5.900	6.100	6.300
L	0.500	0.600	0.700
b	0.350	0.400	0.450
h	0.050	0.150	0.250
e	1.270TYPE		
theta <sub>1</sub>	7° TYPE(8R)		12° TYPE(12R)
theta <sub>2</sub>	7° TYPE(8R)		10° TYPE(12R)
theta <sub>3</sub>	8° TYPE(8R)		12° TYPE(12R)
theta <sub>4</sub>	8° TYPE(8R)		10° TYPE(12R)
theta	0° ~ 8°		