

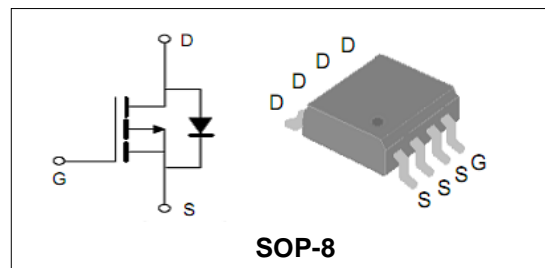
**-30V/-5.3A P-Channel Advanced Power MOSFET****Features**

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- Improved Shoot-Through FOM
- Package Dimensions

BVDSS	-30	V
ID	-5.3	A
RDSON@VGS=-10V	36	mΩ
RDSON@VGS=-4.5V	50	mΩ

**Applications**

- PWM applications
- Load switch
- Power management

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PT9435	SOP-8	PT9435	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	$T_A = 25^\circ\text{C}$	-2.6	A
<b>Mounted on Large Heat Sink</b>				
$I_{DM}$	Pulse Drain Current Tested (Silicon Limit) (Note1)	$T_A = 25^\circ\text{C}$	-20	A
$I_D$	Continuous Drain current	$T_A = 25^\circ\text{C}$	-5.3	A
$P_D$	Maximum Power Dissipation	$T_A = 25^\circ\text{C}$	2.5	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient (Note2)		62.5	°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=-24V,VGS=0V	--	--	-1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	VGS=±16V,VDS=0V	--	--	±100	nA
V <sub>GS(TH)</sub>	Gate Threshold Voltage	VDS=VGS,ID=-250μA	-1	--	-3	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance (Note3)	VGS=-4.5V, ID=-4.2A	--	50	90	mΩ
		VGS=-10V, ID=-5.3A	--	36	60	mΩ
g <sub>FS</sub>	Forward Transconductance	VDS=-10V,ID=-5.3A	--	10	--	S
<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	--	551.57	--	pF
C <sub>oss</sub>	Output Capacitance		--	90.96	--	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		--	60.79	--	pF
Q <sub>g</sub>	Total Gate Charge	VDS= -15V, ID= -5.3A, VGS= -10V	--	9.35	--	nC
Q <sub>gs</sub>	Gate-Source Charge		--	3.43	--	nC
Q <sub>gd</sub>	Gate-Drain Charge		--	1.7	--	nC
<b>Switching Characteristics (Note4)</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	VDD=-15V, RL=15Ω, ID=-1A, RG=6Ω, VGS=-10V	--	10.8	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	2.33	--	nS
t <sub>d(off)</sub>	Turn-off Delay Time		--	22.53	--	nS
t <sub>f</sub>	Turn-off Fall Time		--	3.87	--	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=-2.6A,VGS=0V	--	--	-1.3	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.



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Typical Characteristics

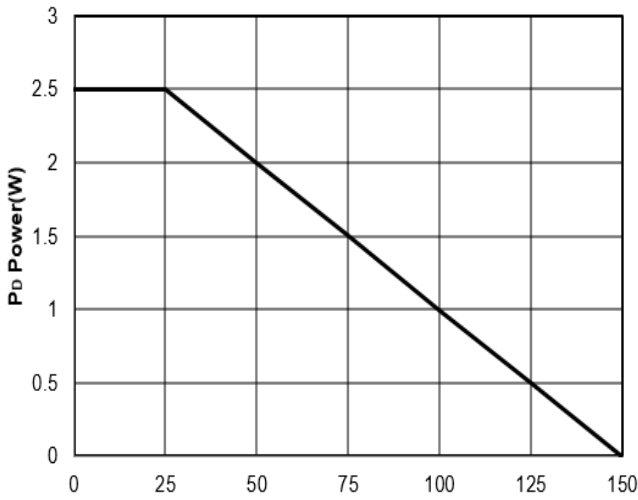


Figure1: Tj Junction Temperature (°C)

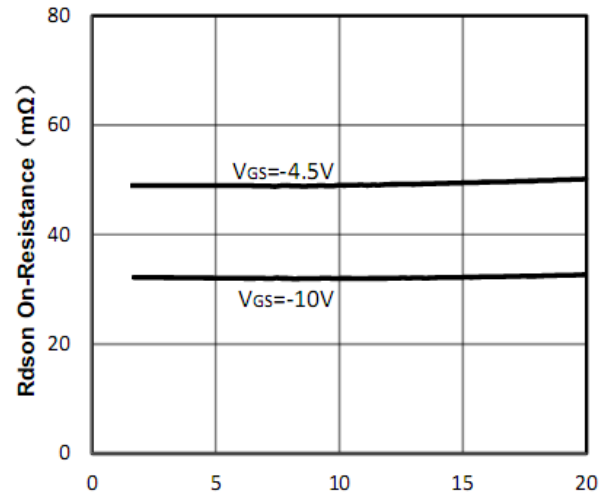


Figure2: -Id Drain Current (A)

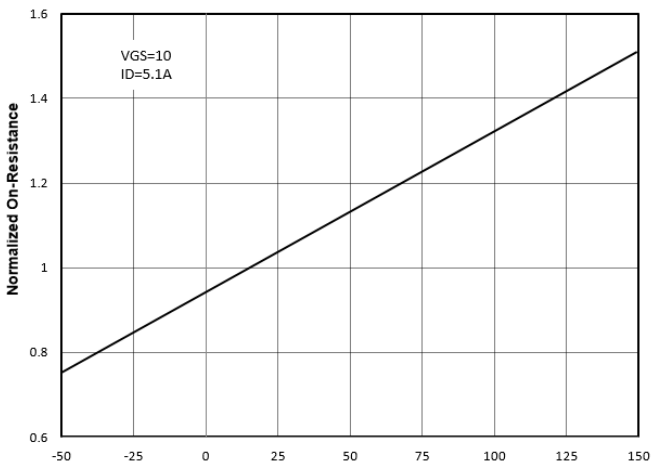


Figure3: Tj Junction Temperature (°C)

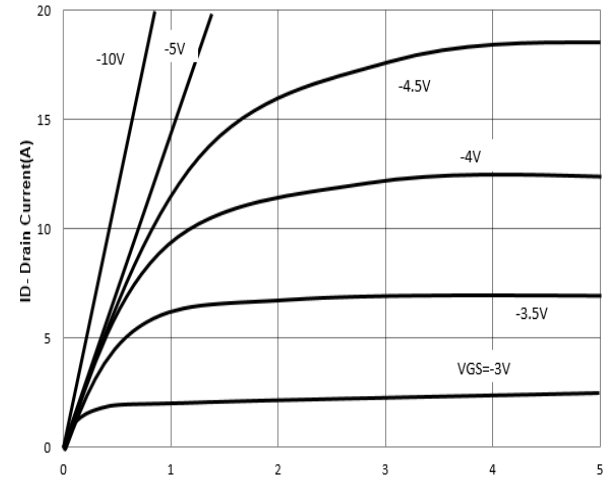


Figure4: -Vds Drain-Source Voltage (V)

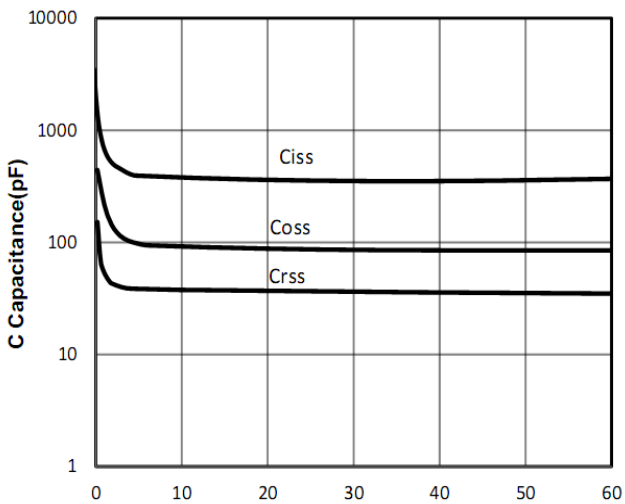


Figure5: -Vds Drain-Source Voltage (V)

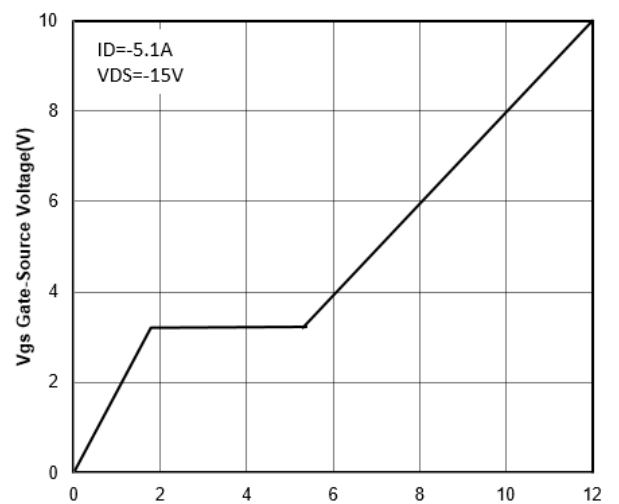


Figure6: Qg Gate Charge (nC)



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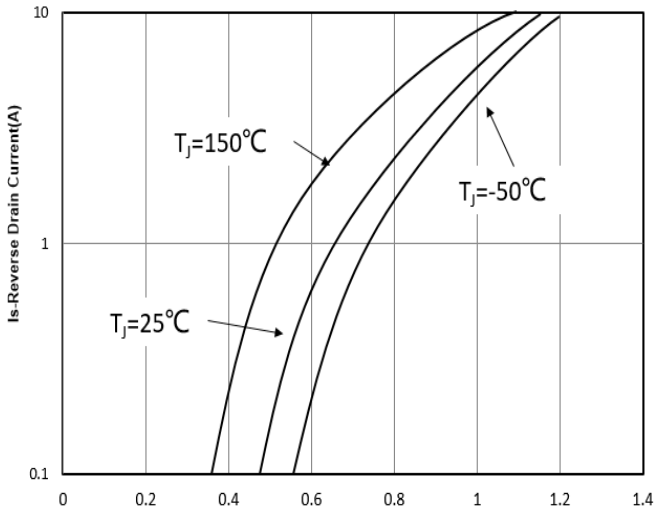


Figure7: -Vsd Source-Drain Voltage (V)

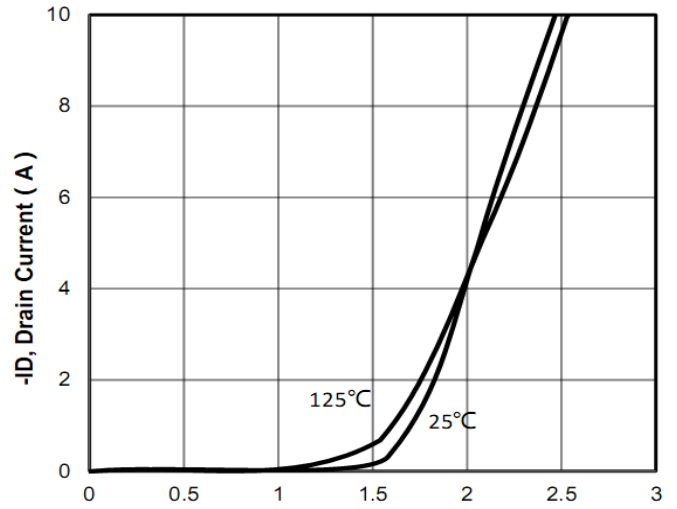


Figure8: -Vgs Gate-Source Voltage (V)

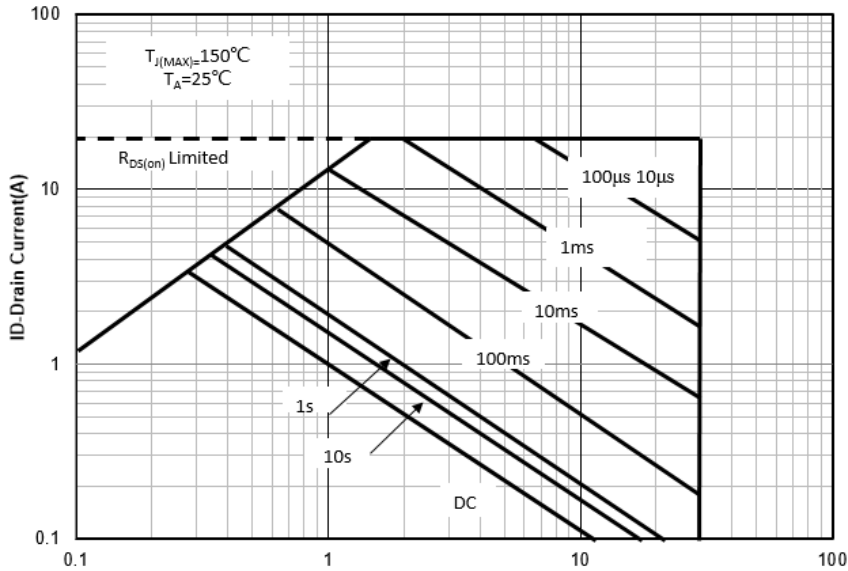


Figure9: Vsd Drain-Source Voltage (V)

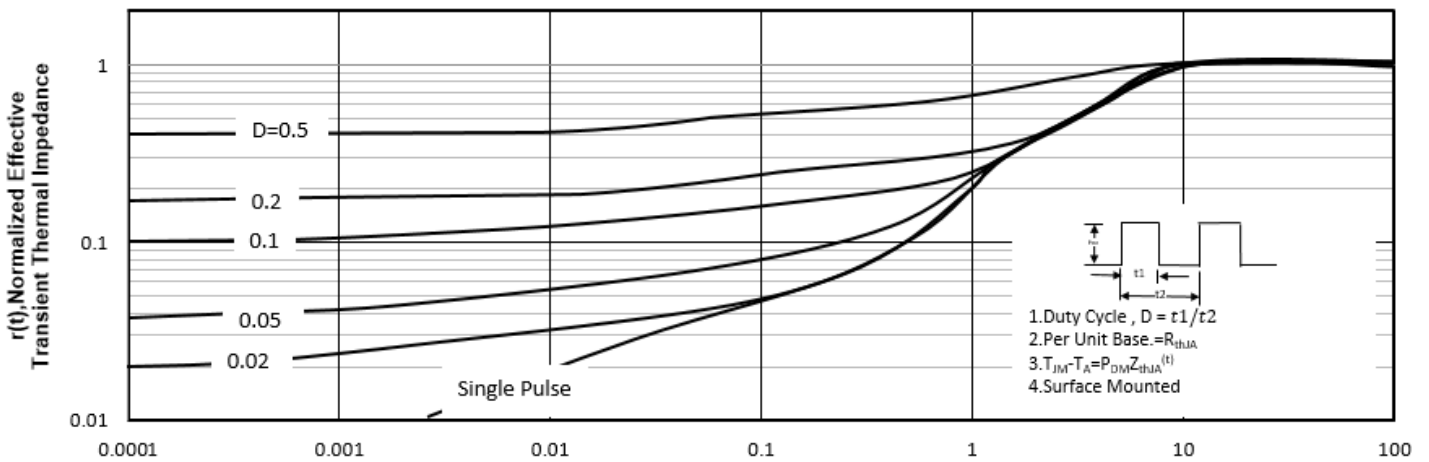


Figure10: Square Wave Pulse Duration (sec)

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Test Circuit and Waveform:

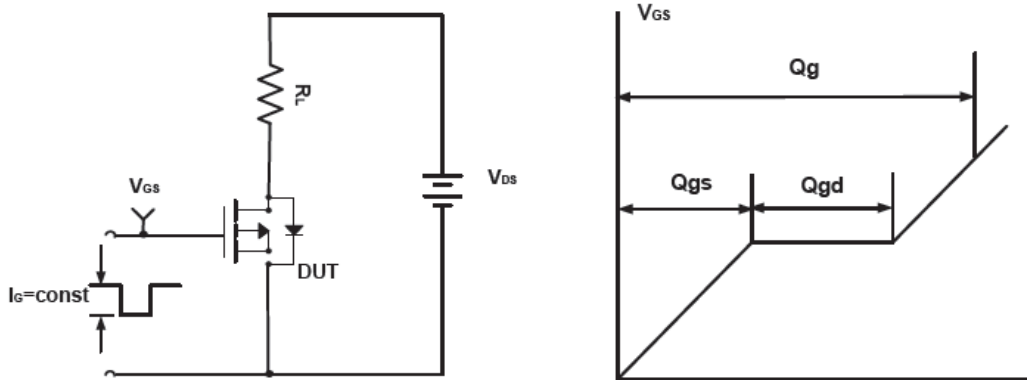


Figure A Gate Charge Test Circuit & Waveforms

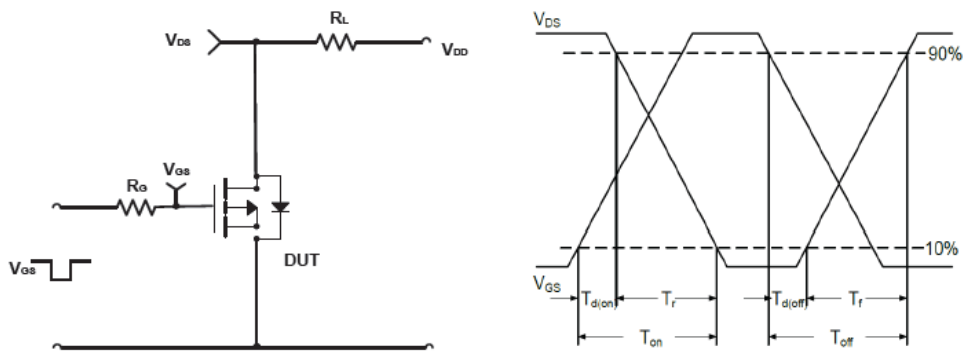


Figure B Switching Test Circuit & Waveforms

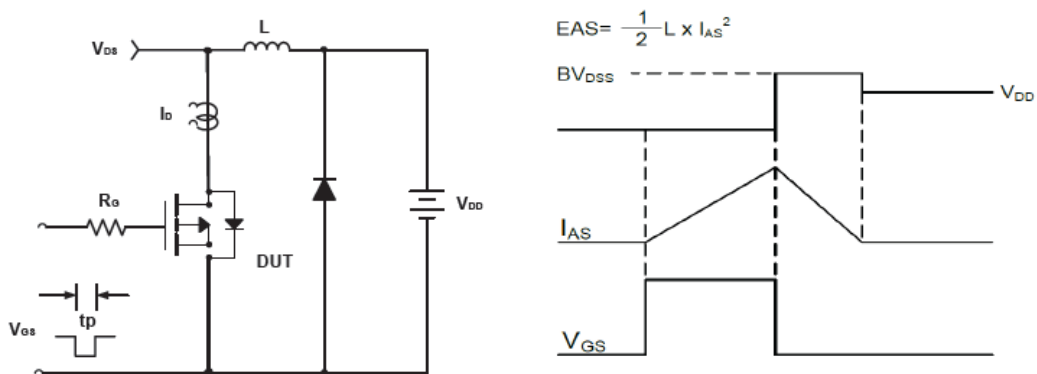
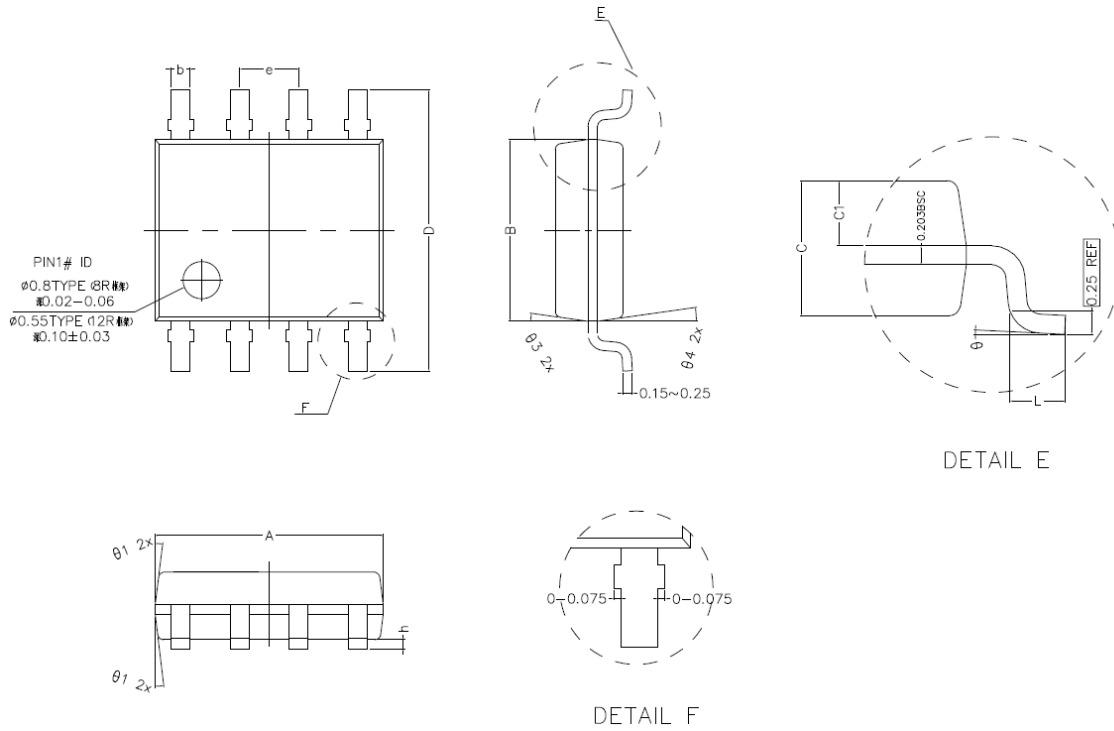


Figure C Unclamped Inductive Switching Circuit & Waveforms

**-30V/-5.3A P-Channel Advanced Power MOSFET**
**SOP-8 Package Outline Dimensions (Units: mm)**


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		
$\theta_1$	7° TYPE(8R)		12° TYPE(12R)
$\theta_2$	7° TYPE(8R)		10° TYPE(12R)
$\theta_3$	8° TYPE(8R)		12° TYPE(12R)
$\theta_4$	8° TYPE(8R)		10° TYPE(12R)
$\theta$	0° ~ 8°		