
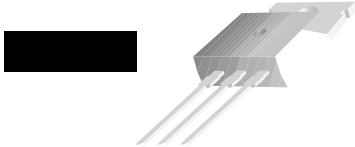
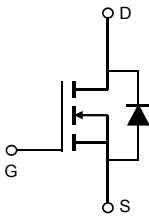


TMT1606P N-CHANNEL POWER MOSFET

<p>General Description</p> <p>The TMT1606P uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.</p>	<p>Product Summary</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">V_{DS}</td> <td style="text-align: right;">60V</td> </tr> <tr> <td>I_D (at $V_{GS}=10V$)</td> <td style="text-align: right;">66A</td> </tr> <tr> <td>$R_{DS(ON)}$ (at $V_{GS}=10V$)</td> <td style="text-align: right;">< 12.5mΩ</td> </tr> </table> <p>100% UIS Tested 100% R_g Tested</p> <div style="text-align: right;">  </div>	V_{DS}	60V	I_D (at $V_{GS}=10V$)	66A	$R_{DS(ON)}$ (at $V_{GS}=10V$)	< 12.5m Ω
V_{DS}	60V						
I_D (at $V_{GS}=10V$)	66A						
$R_{DS(ON)}$ (at $V_{GS}=10V$)	< 12.5m Ω						

Top View
TO-220AB





Absolute Maximum Ratings $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	60	V
V_{GSS}	Gate-Source Voltage	± 25	
T_J	Maximum Junction Temperature	175	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 66	A

Mounted on Large Heat Sink

I_{DM}	Pulsed Drain Current *	$T_C=25^\circ\text{C}$	250**	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$	66	A
		$T_C=100^\circ\text{C}$	50	
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	88	W
		$T_C=100^\circ\text{C}$	44	
$R_{\theta JC}$	Thermal Resistance-Junction to Case		1.7	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		62.5	

Avalanche Ratings

E_{AS}	Avalanche Energy, Single Pulsed	$L=0.5\text{mH}$	200**	mJ
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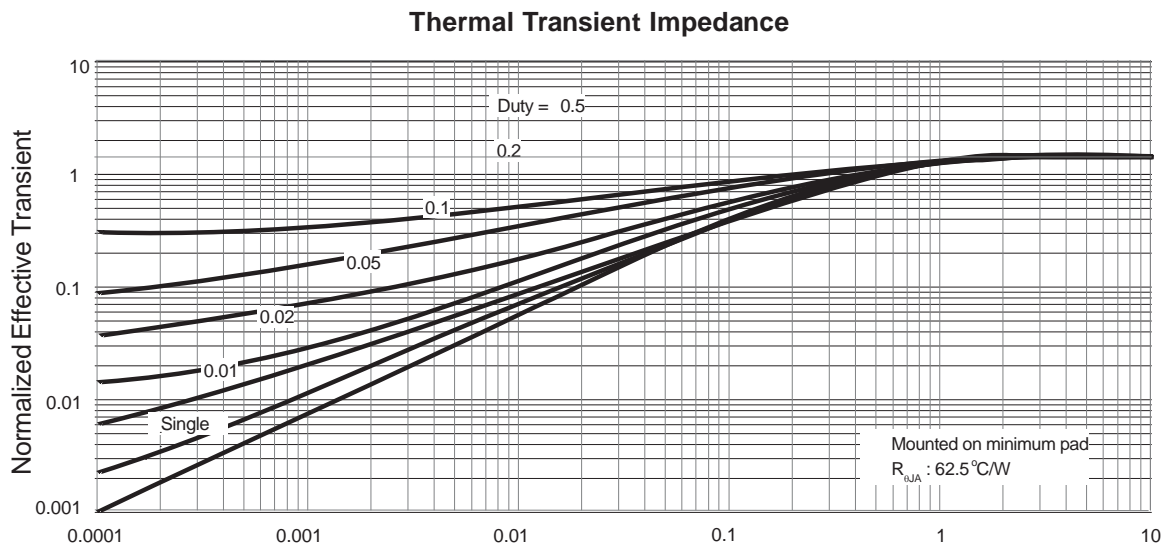
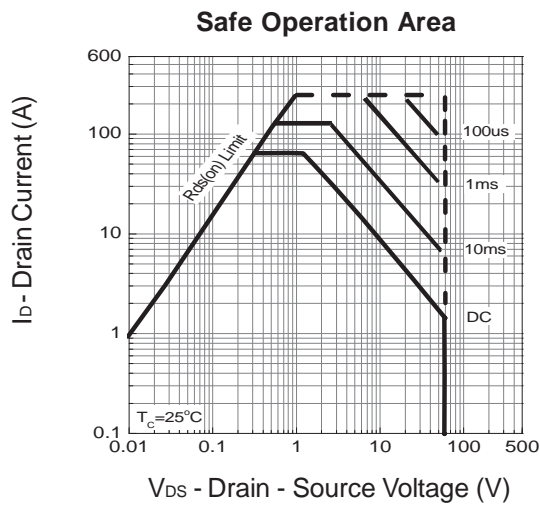
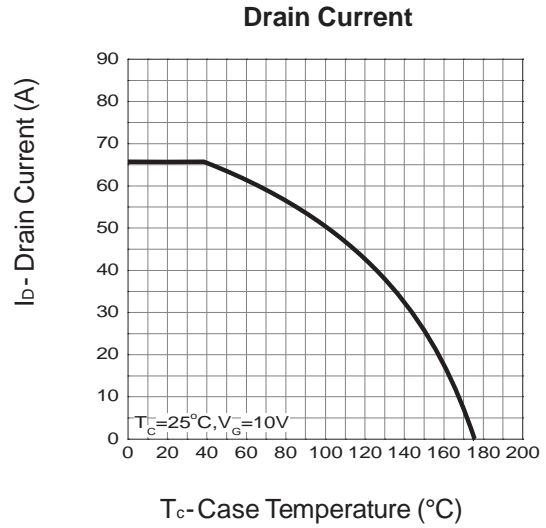
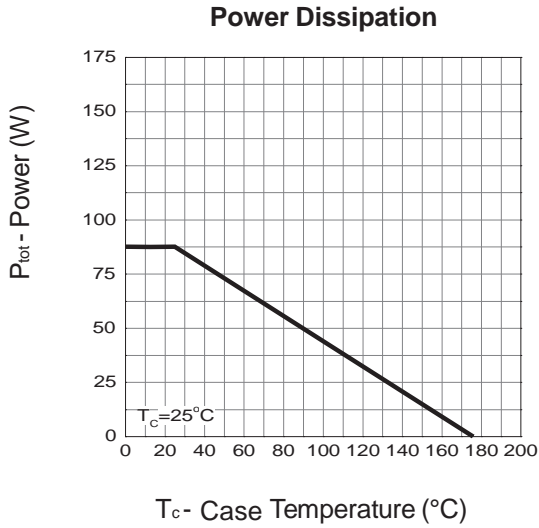
Note : * Repetitive rating ; pulse width limited by junction temperature
 ** Drain current is limited by junction temperature
 *** $V_D=48V$

! " #

Symbol	Parameter	Test Conditions	TMT1606P			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	60	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$	-	-	1	μA
		$T_J=85^\circ C$	-	-	10	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2	3	4	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$	-	-	± 100	nA
$R_{DS(ON)^*}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=33A$	-	10.4	12.5	m Ω
Diode Characteristics						
V_{SD}^*	Diode Forward Voltage	$I_{SD}=33A, V_{GS}=0V$	-	0.8	1	V
t_{rr}	Reverse Recovery Time	$I_{SD}=33A, di_{SD}/dt=100A/\mu s$	-	33	-	ns
Q_{rr}	Reverse Recovery Charge		-	61	-	nC
Dynamic Characteristics						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	-	1.0	-	Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=25V,$ Frequency=1.0MHz	-	2068	-	pF
C_{oss}	Output Capacitance		-	764	-	
C_{rss}	Reverse Transfer Capacitance		-	376	-	
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=30V, R_G=5\Omega,$ $I_{DS}=33A, V_{GS}=10V,$	-	14	-	ns
T_r	Turn-on Rise Time		-	13	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	20	-	
T_f	Turn-off Fall Time		-	7.2	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	$V_{DS}=48V, V_{GS}=10V,$ $I_{DS}=33A$	-	51	-	nC
Q_{gs}	Gate-Source Charge		-	11	-	
Q_{gd}	Gate-Drain Charge		-	17	-	

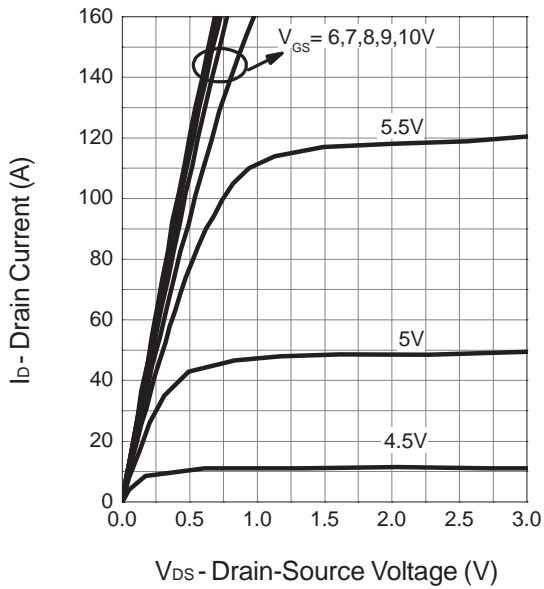
Note * : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical Operating Characteristics

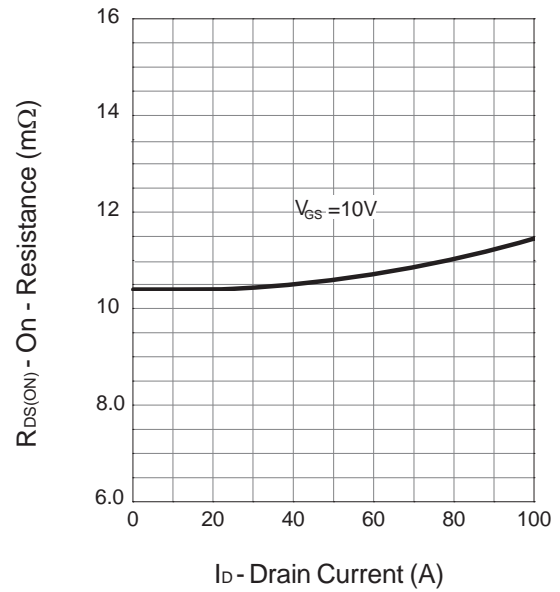


Typical Operating Characteristics (Cont.)

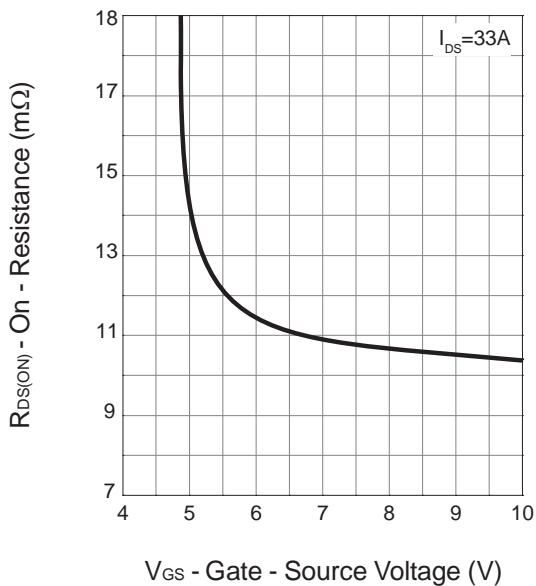
Output Characteristics



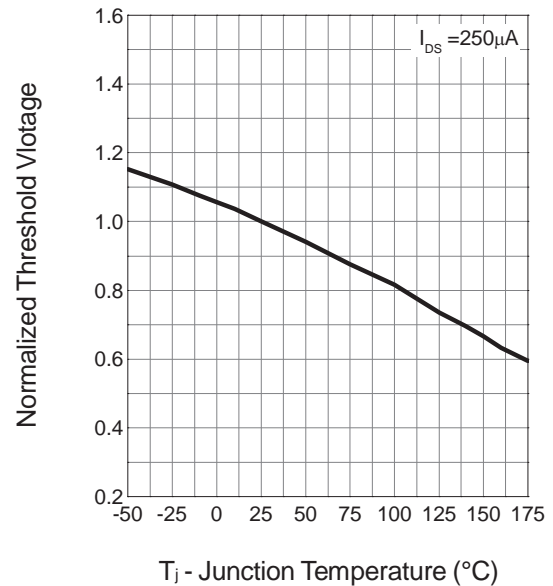
Drain-Source On Resistance



Drain-Source On Resistance

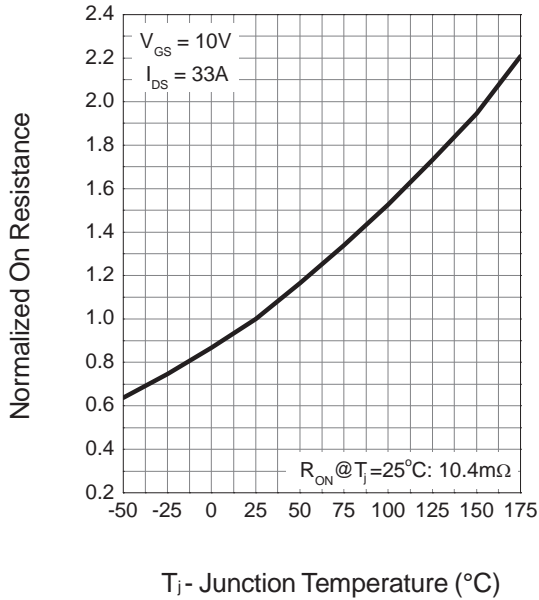


Gate Threshold Voltage

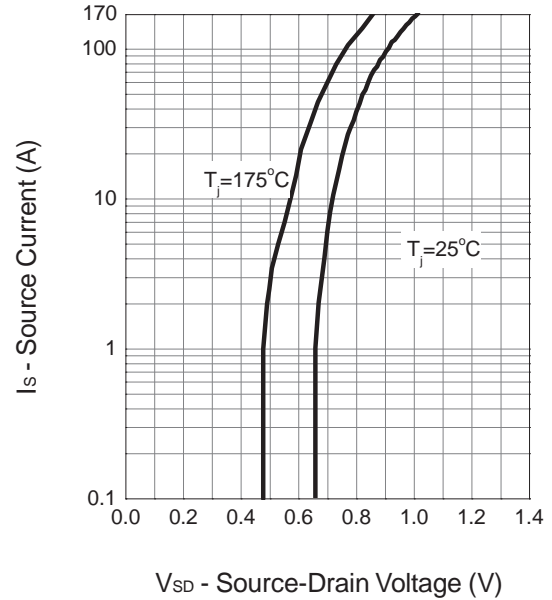


Typical Operating Characteristics (Cont.)

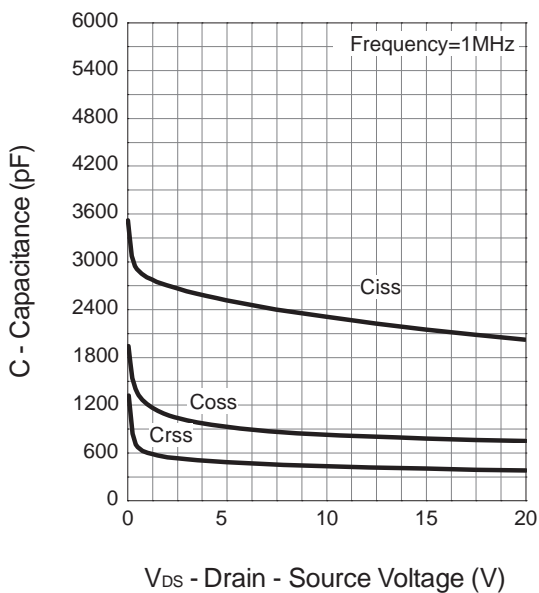
Drain-Source On Resistance



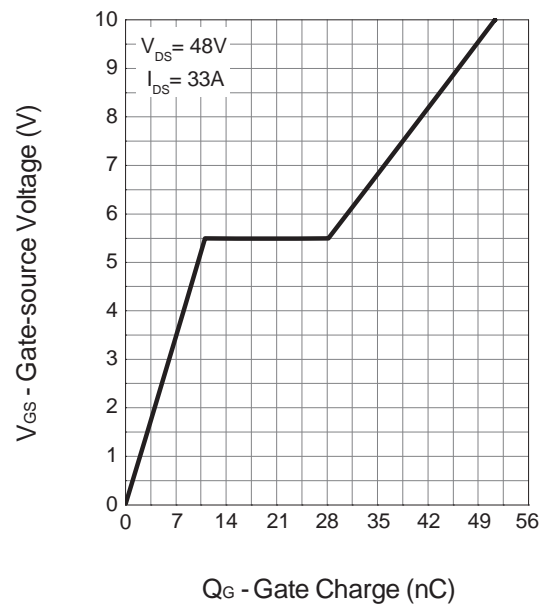
Source-Drain Diode Forward



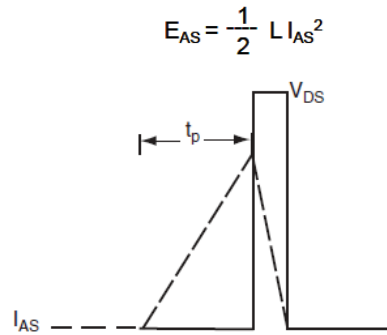
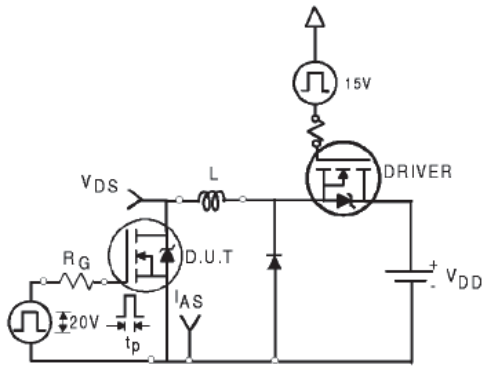
Capacitance



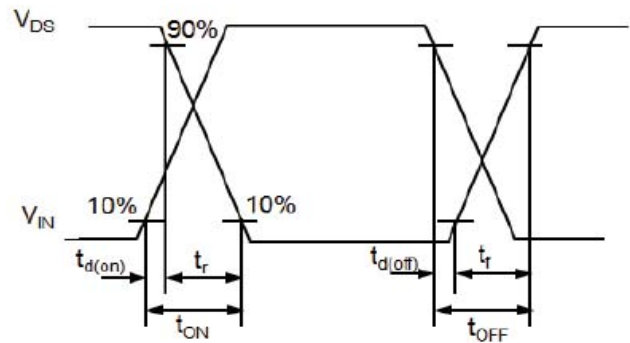
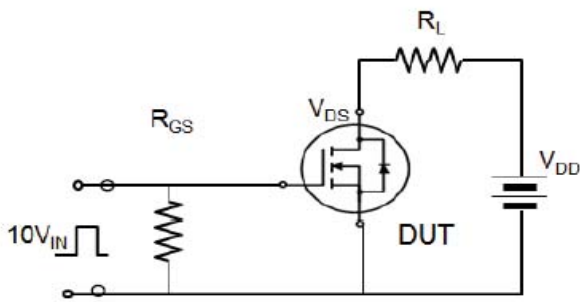
Gate Charge



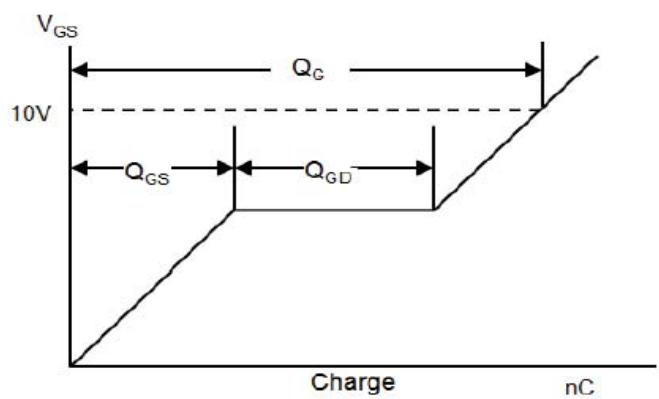
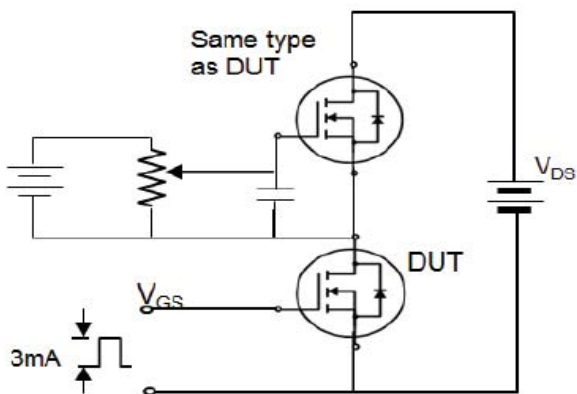
Avalanche Test Circuit



Switching Time Test Circuit

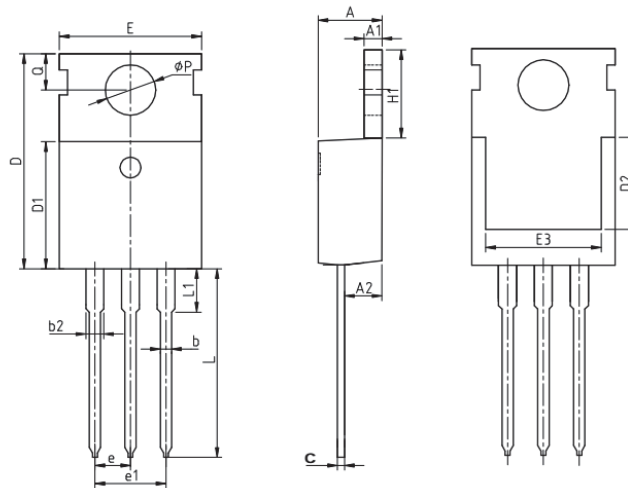


Gate Charge Test Circuit



Package Information

TO-220AB



COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
A	4.37	4.57	4.77
A1	1.25	1.30	1.45
A2	2.20	2.40	2.60
b	0.70	0.80	0.95
b2	1.17	1.27	1.47
c	0.40	0.50	0.65
D	15.10	15.60	16.10
D1	8.80	9.10	9.40
D2	5.50	-	-
E	9.70	10.00	10.30
E3	7.00	-	-
e	2.54 BSC		
e1	5.08 BSC		
H1	6.25	6.50	6.85
L	12.75	13.50	13.80
L1	-	3.10	3.40
ϕP	3.40	3.60	3.80
Q	2.60	2.80	3.00