



YOUSHANG SEMICONDUCTOR

设计研发新型功率器件

各类小信号开关

中低压及高压大电流等场效应管

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企业微信二维码



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Product Summary

BV _{DSS}	Max R _{DS(on)}	Max I _D T _A = +25°C (Note 5)
100V	230mΩ @ V _{GS} = 10V	1.9A
	300mΩ @ V _{GS} = 4.5V	1.68A

Features and Benefits

- Low On-Resistance
- Fast Switching Speed
- Low Threshold
- Low Gate Drive
- SOT26 Package

Description and Applications

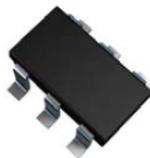
This MOSFET utilizes a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes it ideal for high-efficiency, low-voltage, power-management applications.

- DC-DC converters
- Power-management functions
 - Disconnect switches
 - Motor controls

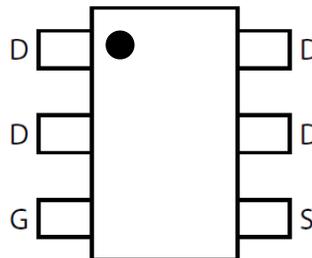
Mechanical Data

- Package: SOT26
 - Package Material: Molded Plastic, "Green" Molding Compound.
 - UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
 - Terminals: Finish – Matte Tin Annealed over Copper Leadframe.
 - Solderable per MIL-STD-202, Method 208 (G3)
- Weight: 0.015 grams (Approximate)

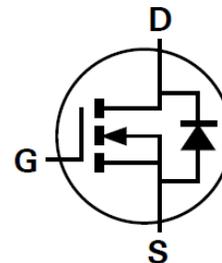
SOT26



Top View



Pinout Top View



Device Symbol

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

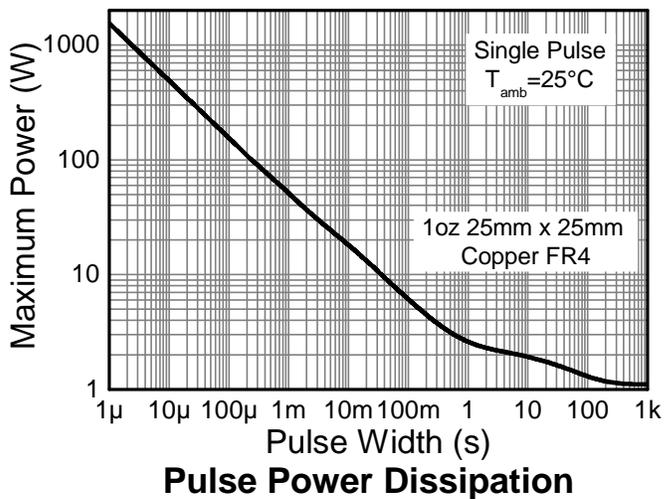
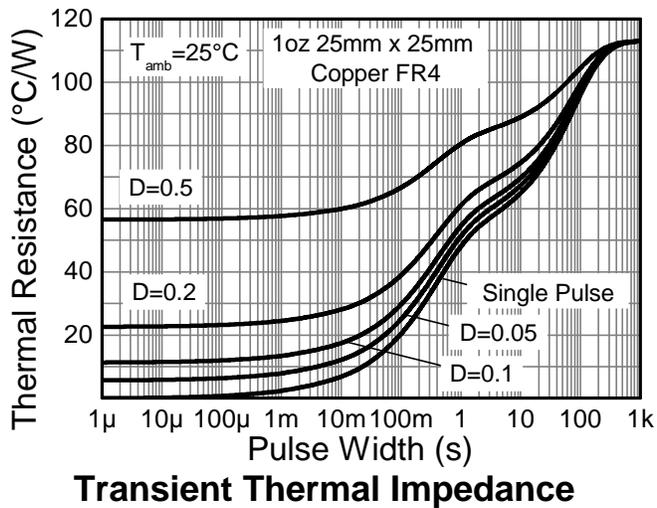
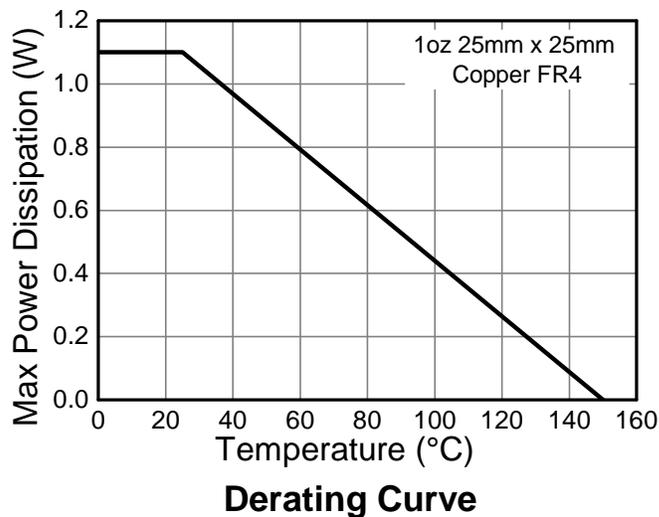
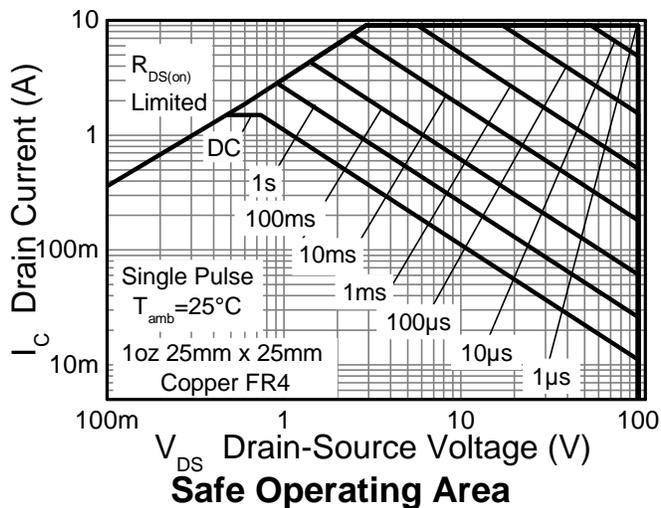
Characteristic		Symbol	Value	Unit	
Drain-Source Voltage		V _{DSS}	100	V	
Gate-Source Voltage		V _{GSS}	±20	V	
Continuous Drain Current	V _{GS} = 10V	(Note 5)	1.9	A	
		T _A = +70°C (Note 5)	1.5		
		(Note 6)	1.6		
Pulsed Drain Current		(Note 7)	I _{DM}	9	A
Continuous Source Current (Body Diode)		(Note 5)	I _S	2.5	A
Pulsed Source Current (Body Diode)		(Note 7)	I _{SM}	9	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation Linear Derating Factor	(Note 6)	P _D	1.1	W
			8.8	
Power Dissipation Linear Derating Factor	(Note 5)	P _D	1.7	W
			13.6	
Thermal Resistance, Junction to Ambient	(Note 6)	R _{θJA}	113	°C/W
	(Note 5)		73	
Operating and Storage Temperature Range		T _J , T _{STG}	-55 to +150	°C

- Notes:
5. For a device surface-mounted on FR4 PCB measured at t ≤ 5 secs.
 6. For a device surface-mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
 7. Repetitive rating 25mm x 25mm FR4 PCB, D = 0.02, pulse width 300μs - pulse width limited by maximum junction temperature. Refer to *Transient Thermal Impedance* graph.

Thermal Characteristics

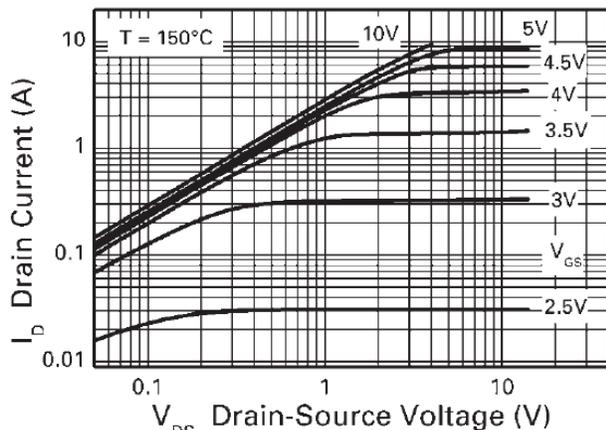


Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

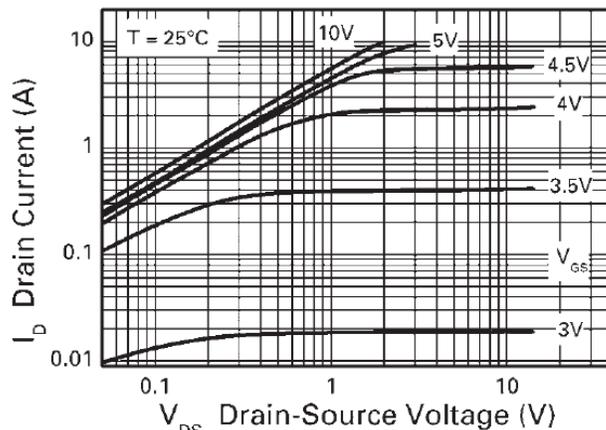
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	100	—	—	V	$I_D = 250\mu\text{A}$, $V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	0.5	μA	$V_{DS} = 100\text{V}$, $V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	100	nA	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	1.0	—	3.0	V	$I_D = 250\mu\text{A}$, $V_{DS} = V_{GS}$
Static Drain-Source On-Resistance (Note 8)	$R_{DS(on)}$	—	—	0.23	Ω	$V_{GS} = 10\text{V}$, $I_D = 1.6\text{A}$
				0.30		$V_{GS} = 4.5\text{V}$, $I_D = 1.4\text{A}$
				0.50		$V_{GS} = 4.3\text{V}$, $I_D = 1.1\text{A}$
Forward Transconductance (Notes 8 & 9)	g_{fs}	—	4.8	—	S	$V_{DS} = 15\text{V}$, $I_D = 1.6\text{A}$
Diode Forward Voltage (Note 8)	V_{SD}	—	0.85	0.95	V	$T_J = +25^\circ\text{C}$, $I_S = 2.0\text{A}$, $V_{GS} = 0\text{V}$
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C_{iss}	—	497	—	pF	$V_{DS} = 50\text{V}$, $V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	29	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	18	—	pF	
Gate Charge (Note 10)	Q_g	—	5.0	—	nC	$V_{DS} = 50\text{V}$, $V_{GS} = 5\text{V}$, $I_D = 1.6\text{A}$
Total Gate Charge (Note 10)	Q_g	—	9.2	—	nC	$V_{DS} = 50\text{V}$, $V_{GS} = 10\text{V}$ $I_D = 1.6\text{A}$
Gate-Source Charge (Note 10)	Q_{gs}	—	1.7	—	nC	
Gate-Drain Charge (Note 10)	Q_{gd}	—	2.5	—	nC	
Turn-On Delay Time (Note 10)	$t_{d(on)}$	—	2.9	—	ns	$V_{DD} = 50\text{V}$, $I_D = 1.0\text{A}$ $R_G \cong 6.0\Omega$, $V_{GS} = 10\text{V}$
Turn-On Rise Time (Note 10)	t_r	—	2.1	—	ns	
Turn-Off Delay Time (Note 10)	$t_{d(off)}$	—	12.1	—	ns	
Turn-Off Fall Time (Note 10)	t_f	—	5.0	—	ns	
Reverse Recovery Time	t_{rr}	—	32	—	ns	$T_J = +25^\circ\text{C}$, $I_F = 1.7\text{A}$ $di/dt = 100\text{A}/\mu\text{s}$
Reverse Recovery Charge	Q_{rr}	—	40	—	nC	

- Notes:
8. Measured under pulsed conditions. Width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.
 9. For design aid only, not subject to production testing.
 10. Switching characteristics are independent of operating junction temperature.

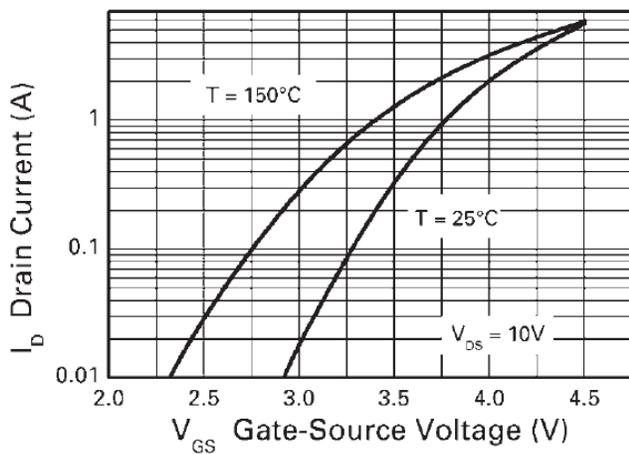
Typical Characteristics



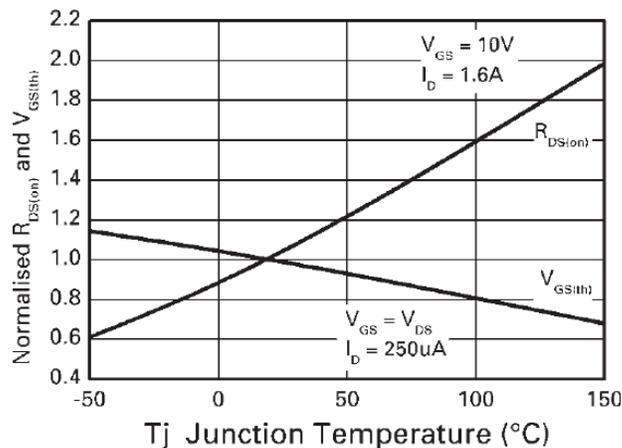
Output Characteristics



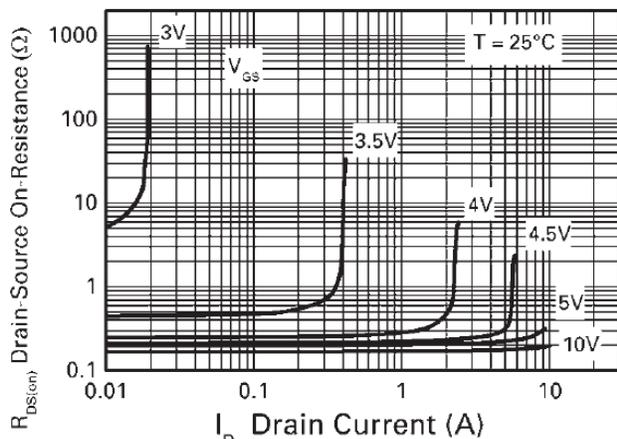
Output Characteristics



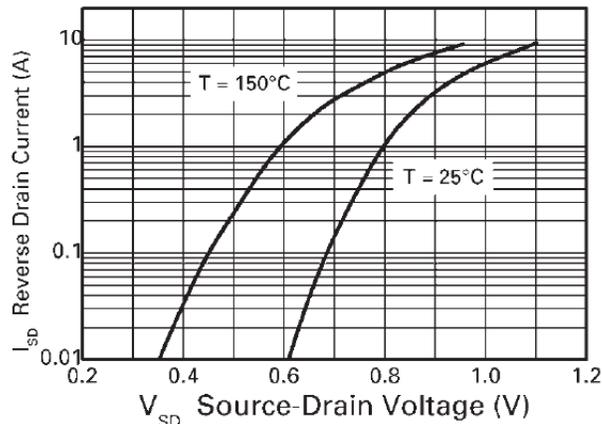
Typical Transfer Characteristics



Normalised Curves v Temperature

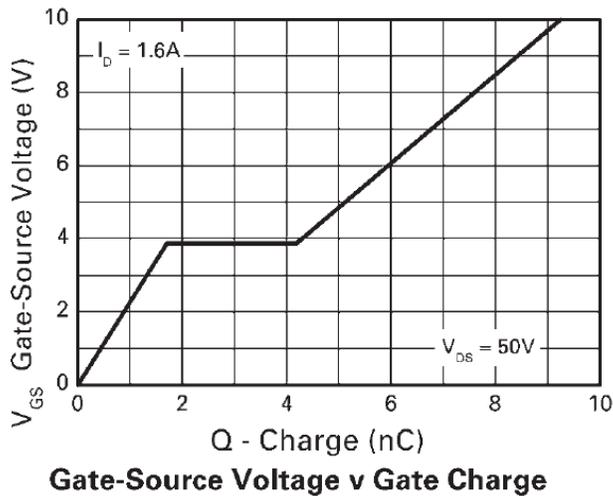
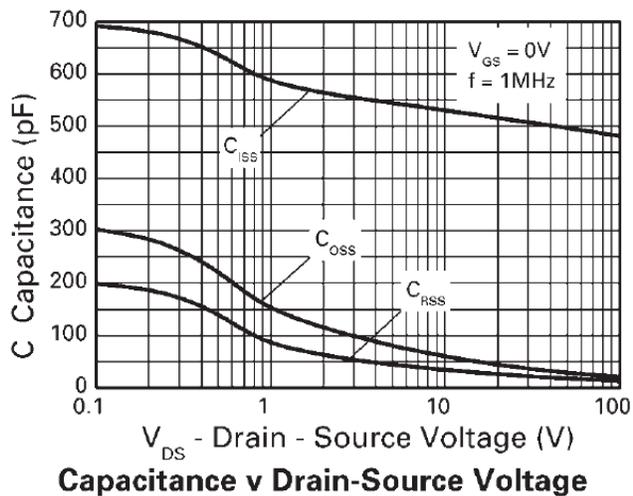


On-Resistance v Drain Current

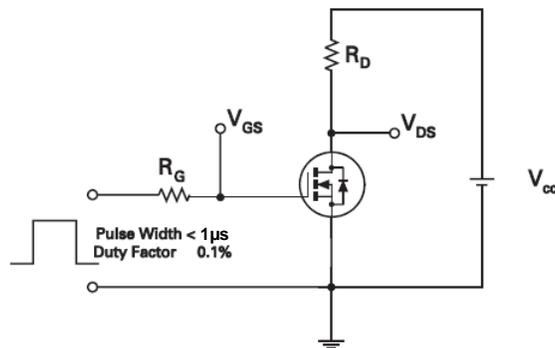
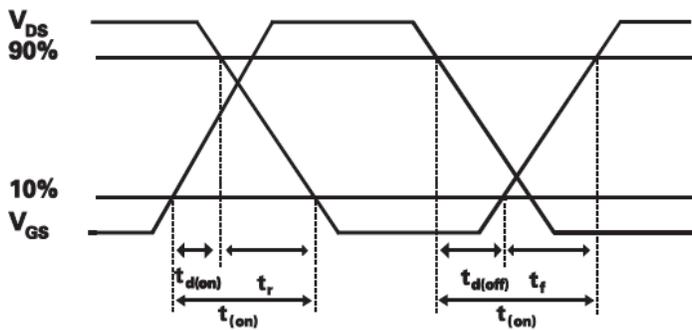
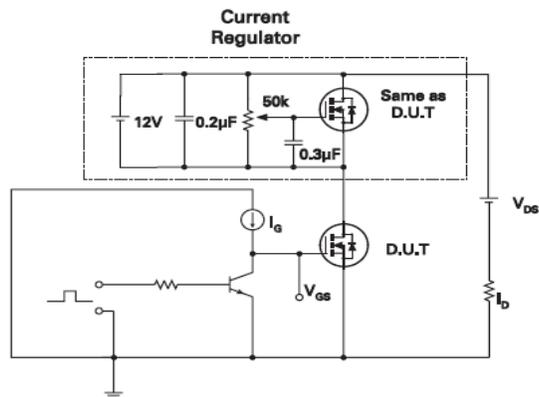
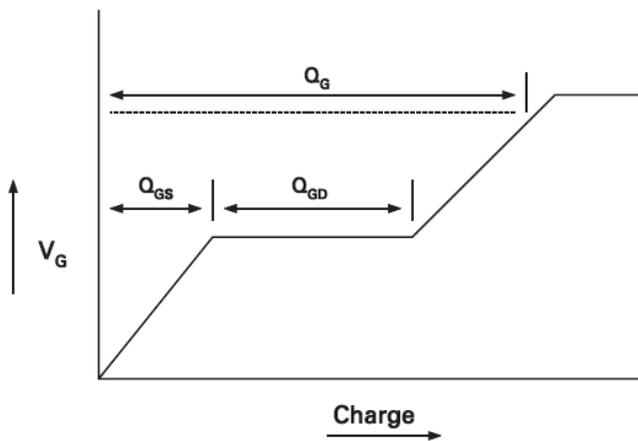


Source-Drain Diode Forward Voltage

Typical Characteristics (continued)

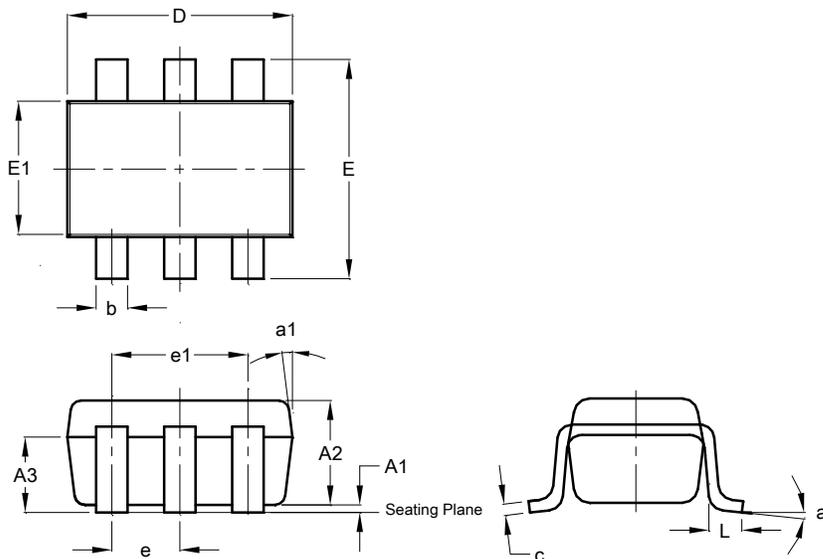


Test Circuits



Package Outline Dimensions

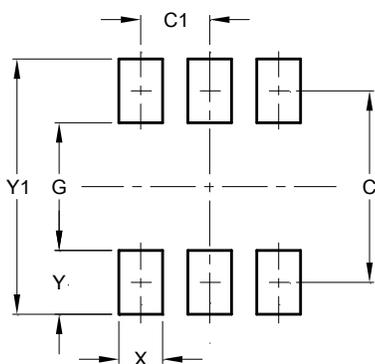
SOT26



SOT26			
Dim	Min	Max	Typ
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

Suggested Pad Layout

SOT26



Dimensions	Value (in mm)
C	2.40
C1	0.95
G	1.60
X	0.55
Y	0.80
Y1	3.20