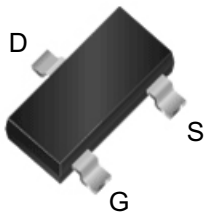
WNM01N10

Single N-Channel, 100V, 1.7A, Power MOSFET

Http://www.sh-willsemi.com

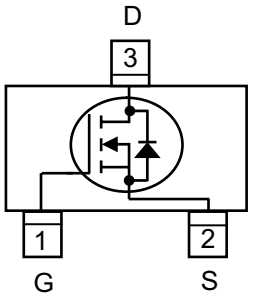
V_{DS} (V)	Typical Rds(on) (Ω)
100	0.235@ V_{GS}=10V
	0.255@ V_{GS}=4.5V



SOT-23

Descriptions

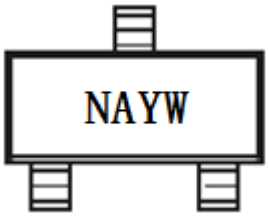
The WNM01N10 is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS\ (ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WNM01N10 is Pb-free and Halogen-free.



Pin configuration (Top view)

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Small package SOT-23



NA = Device Code
Y = Year
W = Week

Marking

Applications

- Driver for Relay, Solenoid, Motor, LED etc.
- DC-DC converter circuit
- Power Switch
- Load Switch
- Charging

Order information

Device	Package	Shipping
WNM01N10-3/TR	SOT-23	3000/Reel&Tape

Absolute Maximum ratings

Parameter		Symbol	1S	10 S	Steady State	Unit
Drain-Source Voltage		V_{DS}	100			V
Gate-Source Voltage		V_{GS}	±20			
Continuous Drain Current [a d]	T_A=25°C	I_D	2.03	1.70	1.52	A
	T_A=70°C		1.62	1.36	1.21	
Maximum Power Dissipation [a d]	T_A=25°C	P_D	2.27	1.60	1.27	W
	T_A=70°C		1.45	1.02	0.81	
Continuous Drain Current [b d]	T_A=25°C	I_D	1.88	1.50	1.34	A
	T_A=70°C		1.5	1.20	1.07	
Maximum Power Dissipation [b d]	T_A=25°C	P_D	1.95	1.25	1.00	W
	T_A=70°C		1.25	0.80	0.64	
Pulsed Drain Current [c]		I_{DM}	7			A
Operating Junction Temperature		T_J	-55 to 150			°C
Lead Temperature		T_L	260			°C
Storage Temperature Range		T_{stg}	-55 to 150			°C

Thermal resistance ratings

Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance [a]	t ≤ 1 s	$R_{\theta JA}$	40	55	°C/W
	t ≤ 10 s		60	78	
	Steady State		88	108	
Junction-to-Ambient Thermal Resistance [b]	t ≤ 1 s	$R_{\theta JA}$	50	64	
	t ≤ 10 s		85	100	
	Steady State		105	125	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	60	75	

a Surface mounted on FR-4 Board using 1 square inch pad size, 1oz copper

b Surface mounted on FR-4 board using minimum pad size, 1oz copper

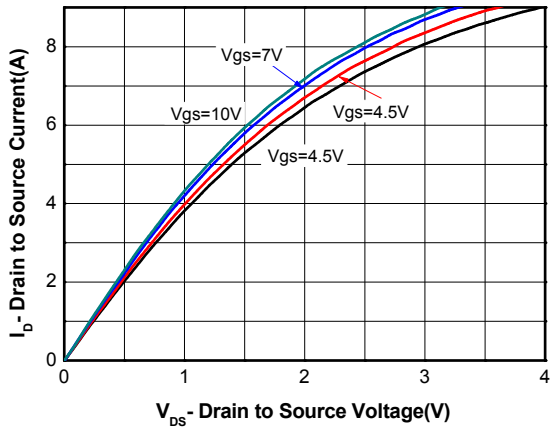
c Pulse width<380μs, Duty Cycle<2%

d Maximum junction temperature T_J=150°C.

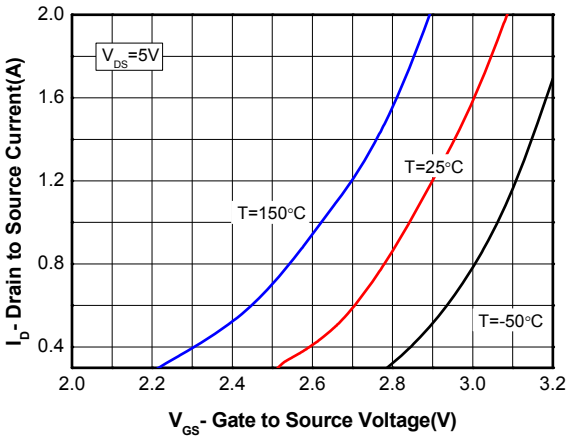
Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250uA	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V			1	uA
Gate-to-source Leakage Current	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS}, I_D = 250uA	1	1.9	2.5	V
Drain-to-source On-resistance [b, c]	$R_{DS(on)}$	V_{GS} = 10V, I_D = 1.4A		235	310	mΩ
		V_{GS} =4.5V, I_D = 1.3A		255	350	
Forward Trans conductance	g_{fs}	V_{DS} = 10V, I_D = 3A		1.1		S
CAPACITANCES, CHARGES						
Input Capacitance	C_{ISS}	V_{GS} = 0 V, f = 1.0 MHz, V_{DS} = 25 V		350		pF
Output Capacitance	C_{OSS}			23.6		
Reverse Transfer Capacitance	C_{RSS}			14.2		
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} = 4.5 V, V_{DS} = 50 V, I_D = 1.6 A		3.6		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.7		
Gate-to-Source Charge	Q_{GS}			1.1		
Gate-to-Drain Charge	Q_{GD}			1.6		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V_{GS} = 4.5 V, V_{DD} = 50 V, R_L= 17 Ω, I_D= 3 A R_G= 3.3 Ω		5.2		ns
Rise Time	tr			17.2		
Turn-Off Delay Time	td(OFF)			23.3		
Fall Time	tf			6.6		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 1A		0.8	1.2	V

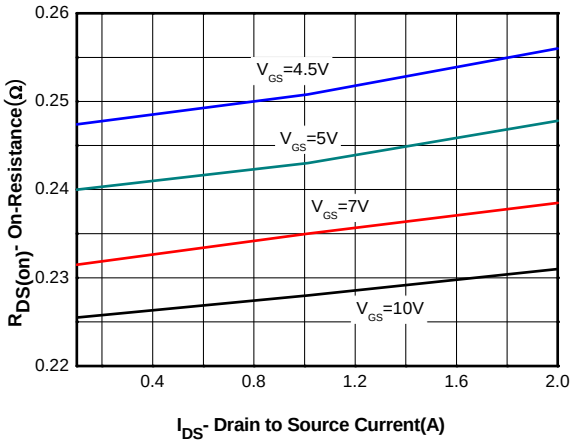
Typical Characteristics (Ta=25°C, unless otherwise noted)



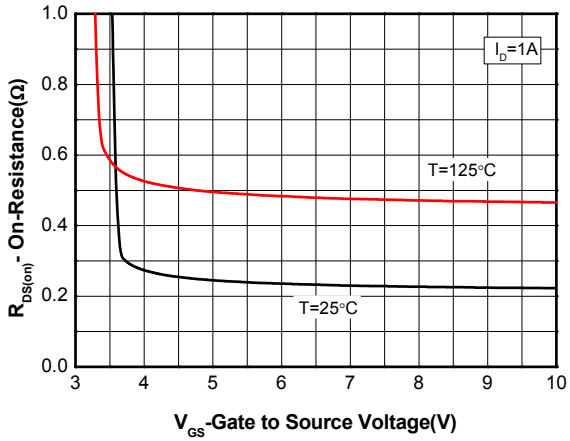
Output characteristics



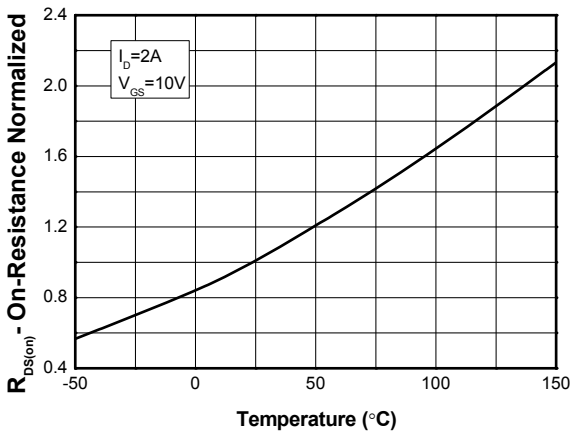
Transfer characteristics



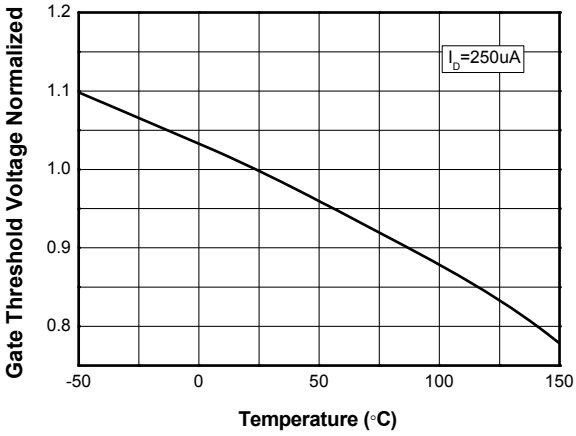
On-Resistance vs. Drain current



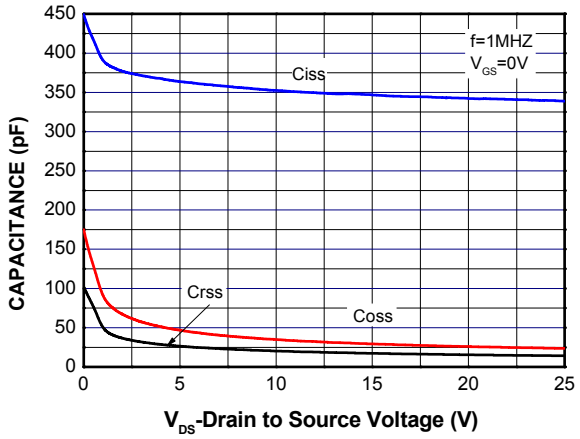
On-Resistance vs. Gate-to-Source voltage



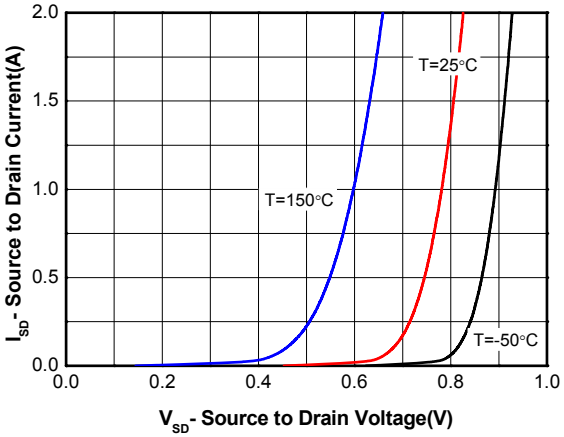
On-Resistance vs. Junction temperature



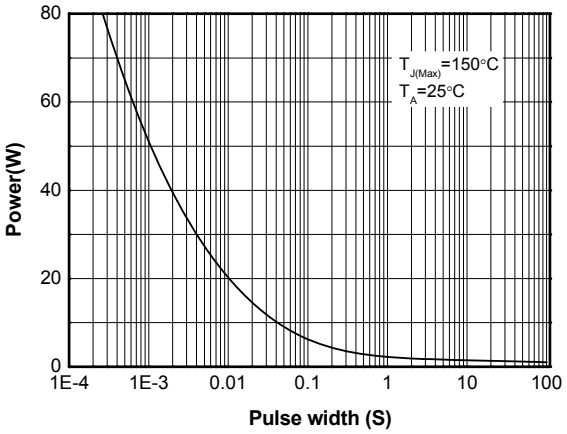
Threshold voltage vs. Temperature



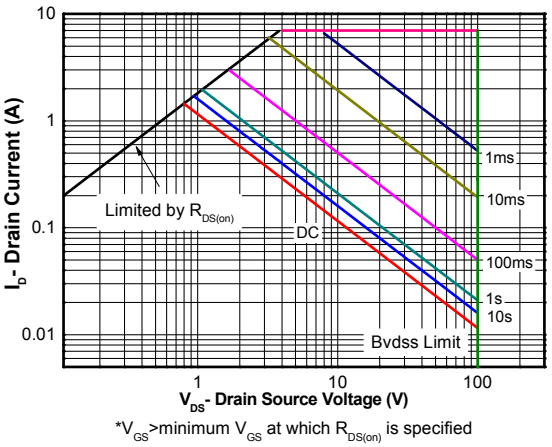
Capacitance



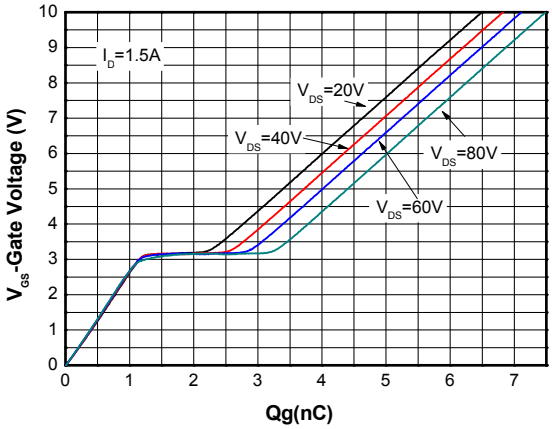
Body diode forward voltage



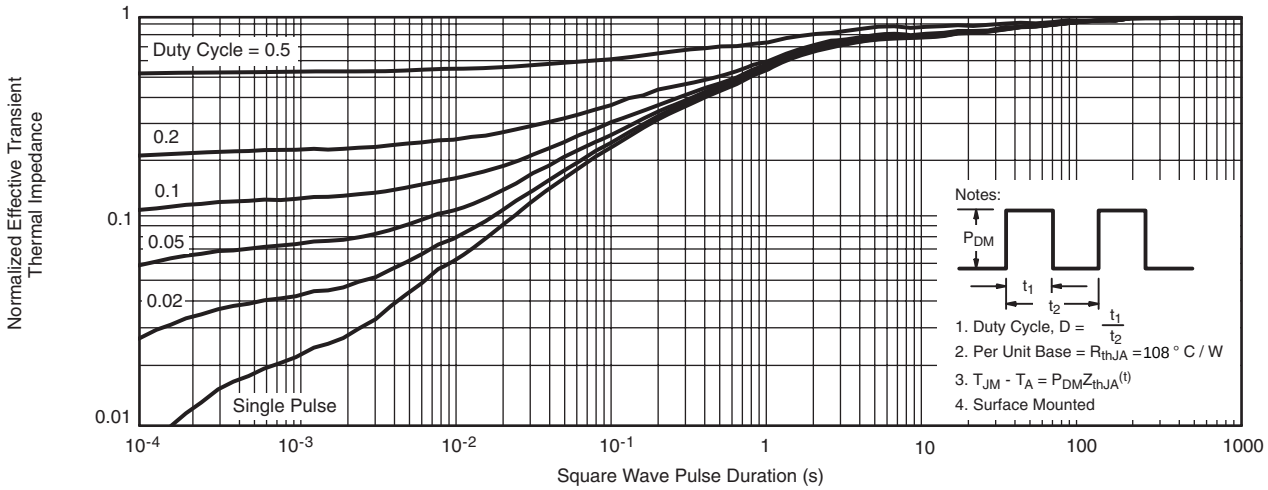
Single pulse power



Safe operating power



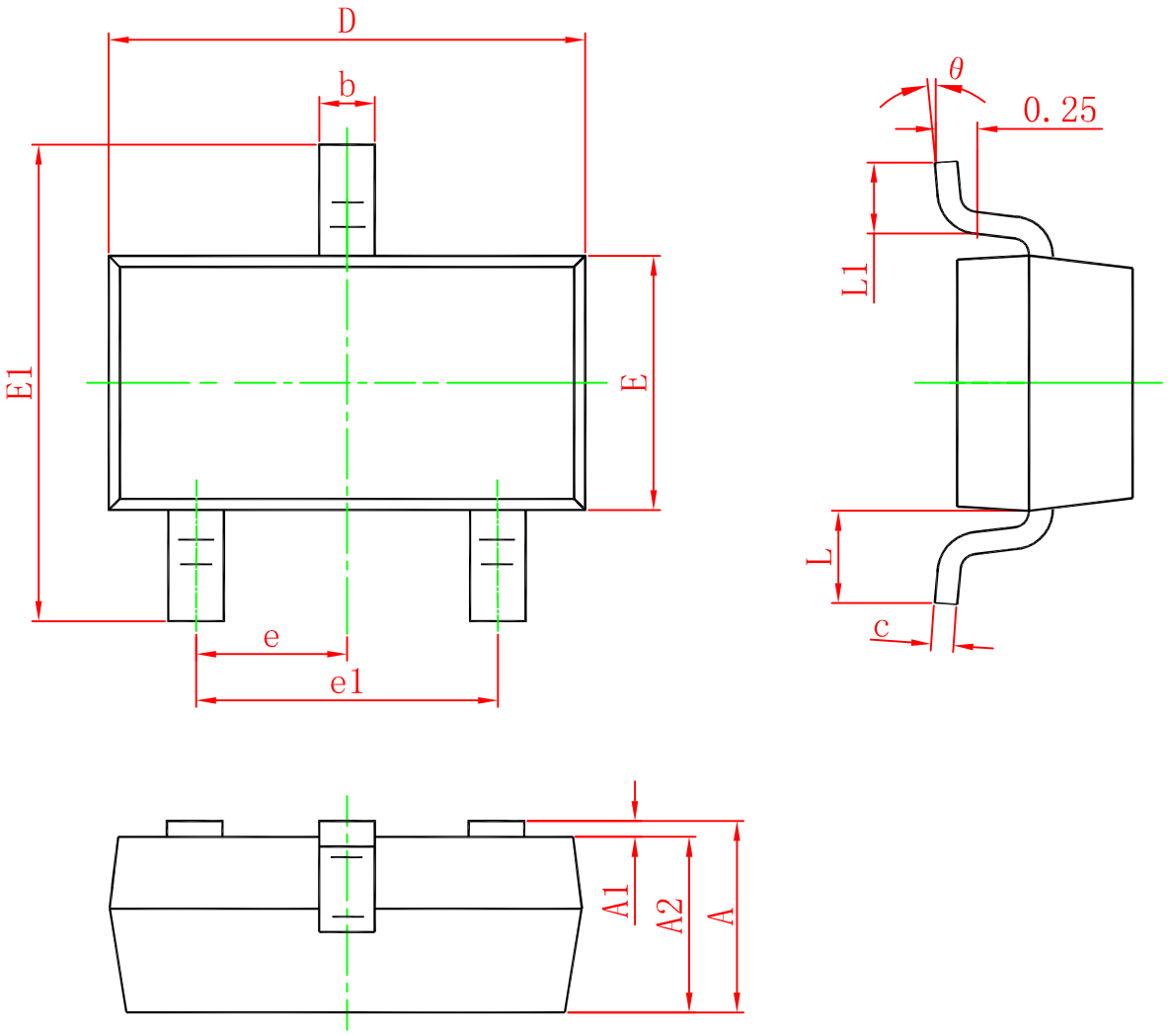
Gate charge Characteristics



Transient thermal response (Junction-to-Ambient)

Package outline dimensions

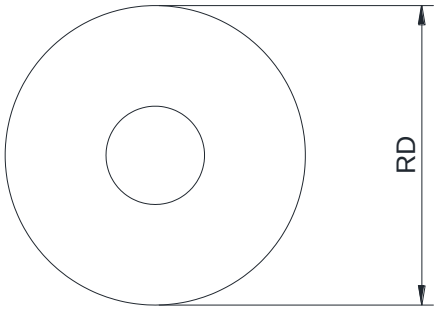
SOT-23



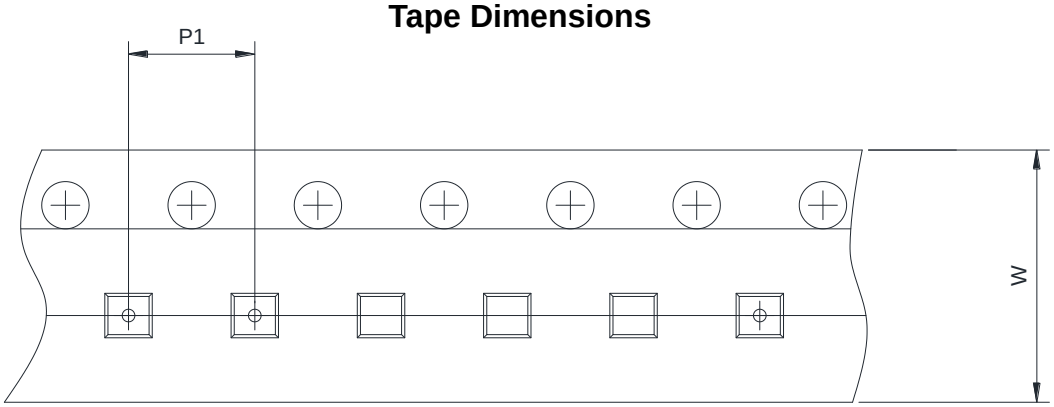
Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950 (Typ.)	
e1	1.800	2.000
L	0.550 (Typ.)	
L1	0.300	0.500
θ	0°	8°

APE AND REEL INFORMATION

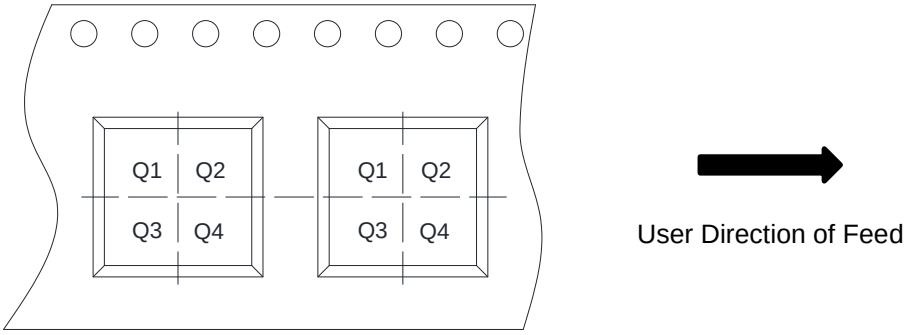
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



RD	Reel Dimension	☑ 7inch ☐ 13inch
W	Overall width of the carrier tape	☑ 8mm ☐ 12mm ☐ 16mm
P1	Pitch between successive cavity centers	☐ 2mm ☑ 4mm ☐ 8mm
Pin1	Pin1 Quadrant	☐ Q1 ☐ Q2 ☑ Q3 ☐ Q4