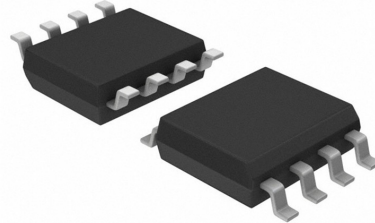
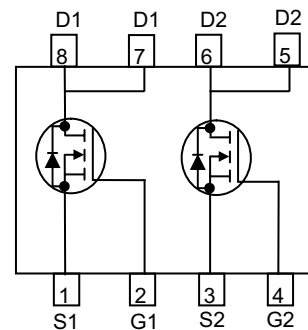


WNMD2155
Dual N-Channel, 20V, 7.9A, Power MOSFET

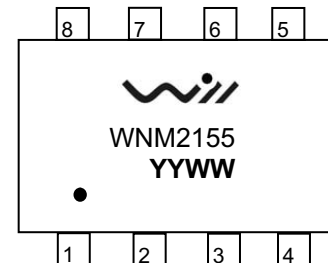
V _{DS} (V)	R _{ds(on)} (Ω)
20	0.018@ VGS=10V
	0.020@ VGS=4.5V
	0.025@ VGS=2.5V
	0.031@ VGS=1.8V

[Http://:www.willsemi.com](http://www.willsemi.com)

Descriptions

The WNMD2155 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 WNMD2155 is Pb-free.

SOP-8L

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Extremely Low Threshold Voltage
- Small package SOP-8L

Pin configuration (Top view)

 =Logo

WNM2155 = Device Code

YY = Year

WW = Week

Marking
Order information

Device	Package	Shipping
WNMD2155-8/TR	SOP-8L	3000/Reel&Tape

Applications

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

Absolute Maximum ratings

Parameter		Symbol	10 S	Steady State	Unit
Drain-Source Voltage		V_{DS}	20		V
Gate-Source Voltage		V_{GS}	± 10		
Continuous Drain Current ^a	$T_A=25^\circ\text{C}$	I_D	7.9	6.0	A
	$T_A=70^\circ\text{C}$		6.3	4.8	
Maximum Power Dissipation ^a	$T_A=25^\circ\text{C}$	P_D	2.0	1.1	W
	$T_A=70^\circ\text{C}$		1.2	0.7	
Continuous Drain Current ^b	$T_A=25^\circ\text{C}$	I_D	6.5	5.3	A
	$T_A=70^\circ\text{C}$		5.2	4.3	
Maximum Power Dissipation ^b	$T_A=25^\circ\text{C}$	P_D	1.3	0.9	W
	$T_A=70^\circ\text{C}$		0.8	0.5	
Pulsed Drain Current ^c		I_{DM}	30		A
Operating Junction Temperature		T_J	150		$^\circ\text{C}$
Lead Temperature		T_L	260		$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-55 to 150		$^\circ\text{C}$

Thermal resistance ratings

Single Operation					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10 \text{ s}$	$R_{\theta JA}$	45	62	$^\circ\text{C/W}$
	Steady State		75	105	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10 \text{ s}$	$R_{\theta JA}$	68	90	
	Steady State		105	135	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	35	45	
Dual Operation					
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10 \text{ s}$	$R_{\theta JA}$	50	65	
	Steady State		80	112	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10 \text{ s}$	$R_{\theta JA}$	73	95	
	Steady State		110	143	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	38	50	

a Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper

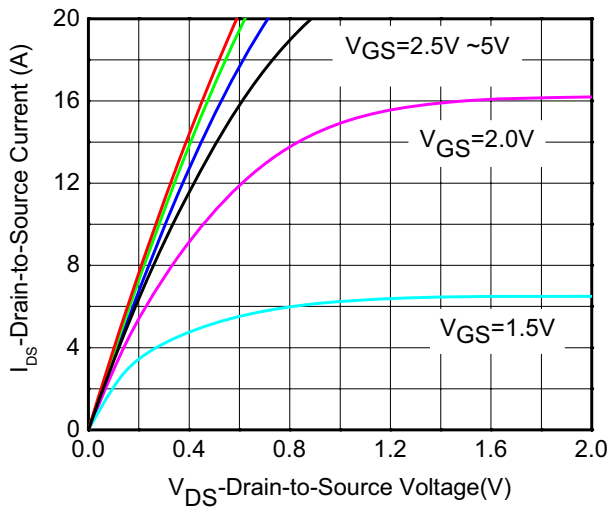
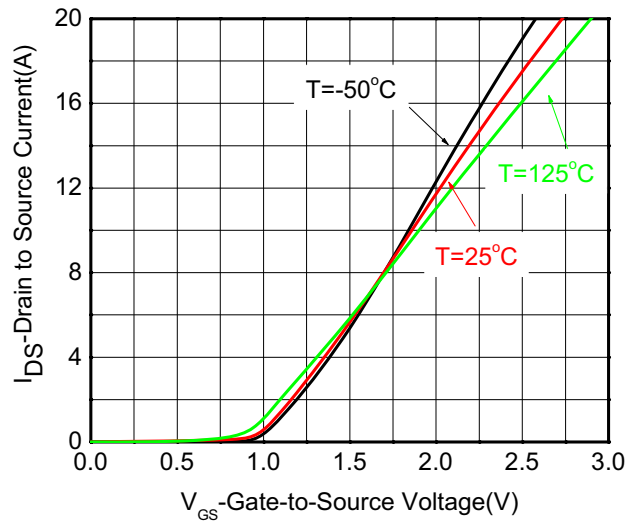
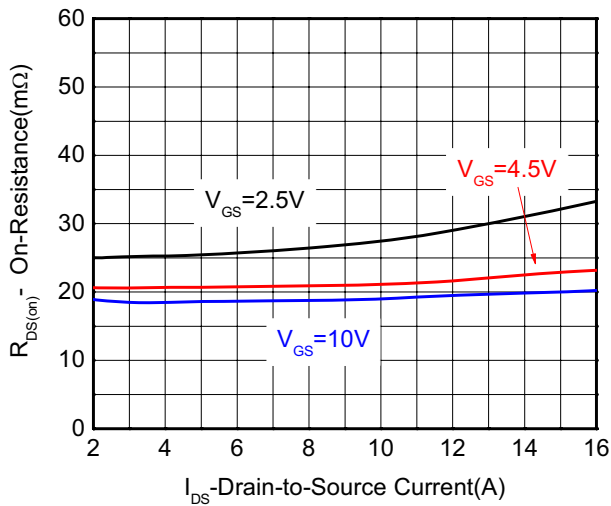
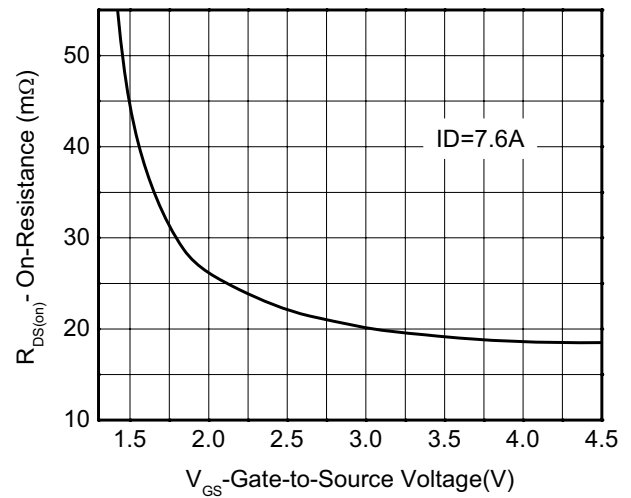
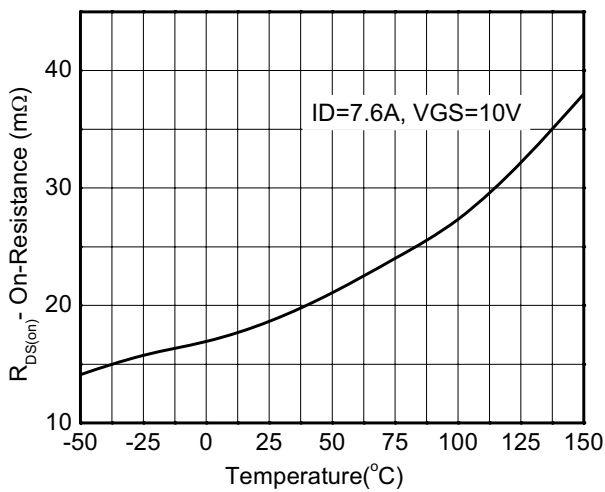
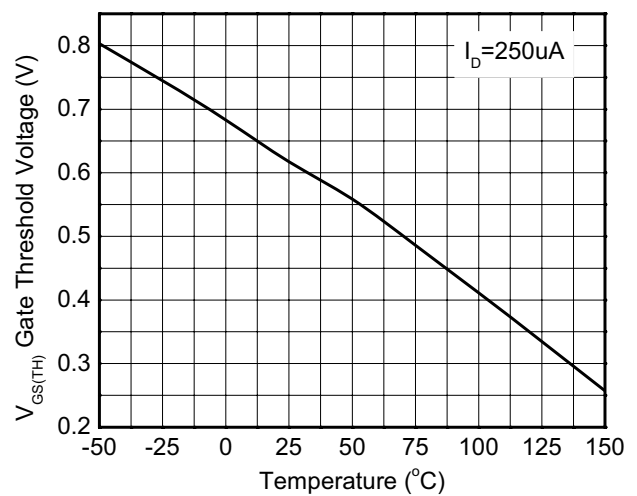
b Surface mounted on FR4 board using minimum pad size, 1oz copper

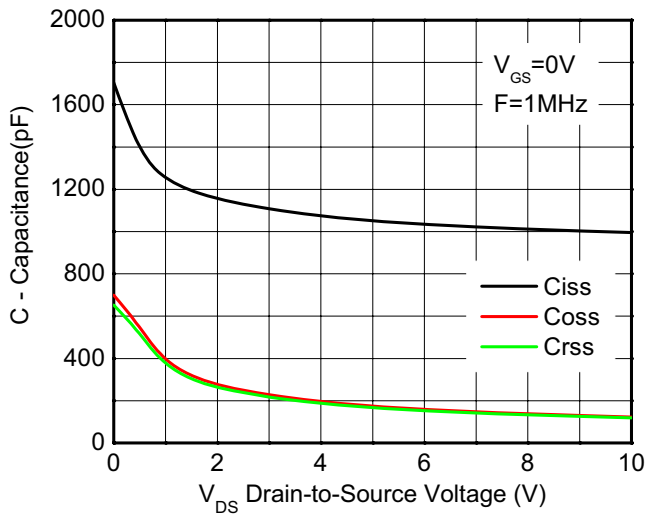
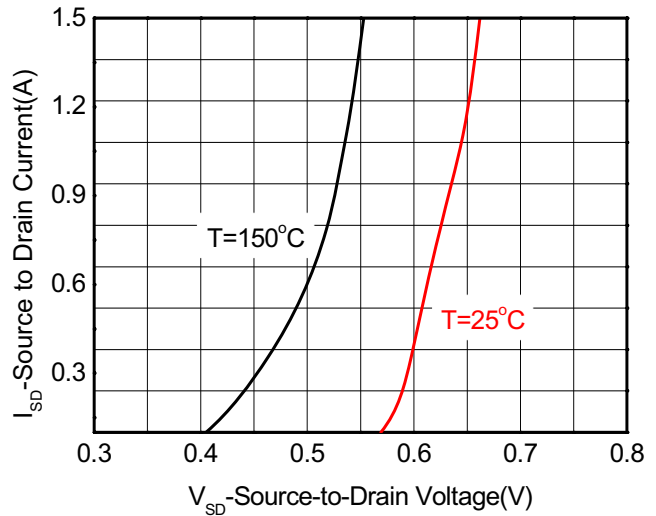
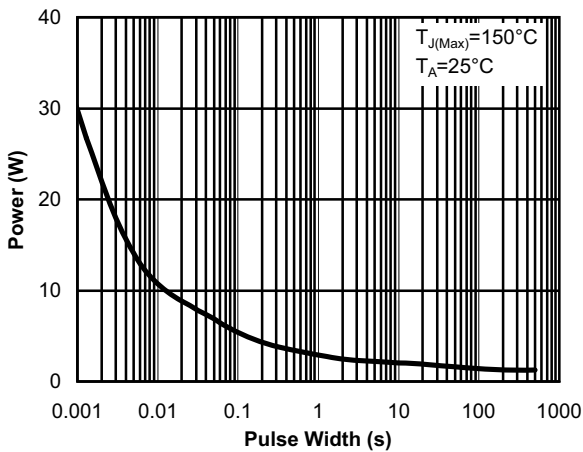
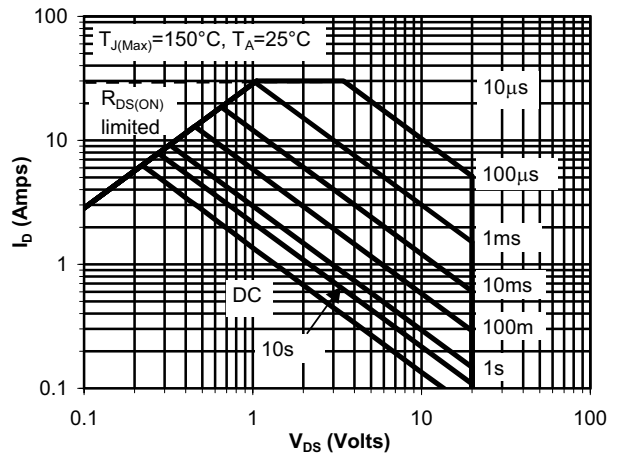
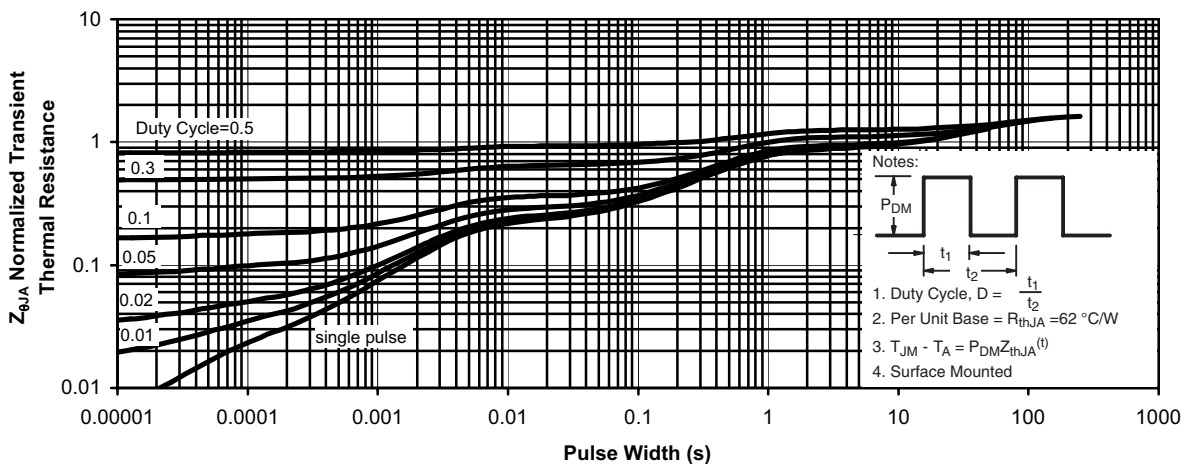
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%

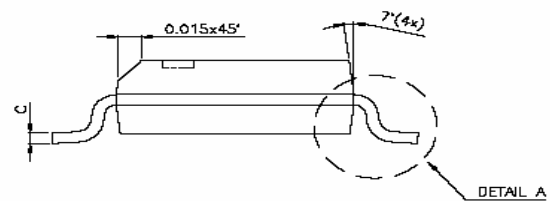
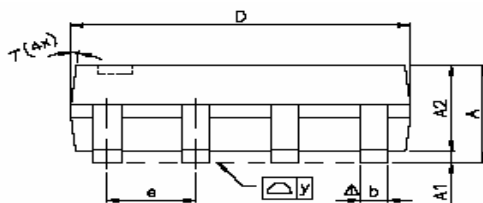
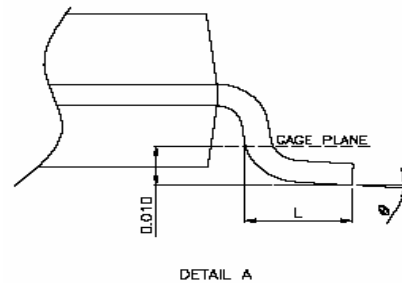
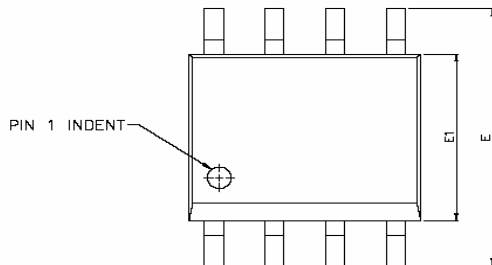
d Repetitive rating, pulse width limited by junction temperature $T_J=150^\circ\text{C}$.

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} = 0 V, I _D = 250uA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0V			1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8V			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250uA	0.40	0.6	1.0	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 7.6A	12	18	27	mΩ
		V _{GS} = 4.5V, I _D = 7.0A	15	20	27	
		V _{GS} = 2.5V, I _D = 6.0 A	19	25	31	
		V _{GS} = 1.8V, I _D = 2.0 A	23	31	49	
Forward Transconductance	g _{FS}	V _{DS} = 5 V, I _D = 7.6A		13		S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1.0 MHz, V _{DS} = 10 V		995		pF
Output Capacitance	C _{OSS}			125		
Reverse Transfer Capacitance	C _{RSS}			120		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 4.5 V, V _{DS} = 10 V, I _D = 7.6A		12.1		nC
Threshold Gate Charge	Q _{G(TH)}			0.66		
Gate-to-Source Charge	Q _{GS}			1.0		
Gate-to-Drain Charge	Q _{GD}			3.3		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V _{GS} = 4.5 V, V _{DS} = 6 V, I _D = 2.0A, R _G = 6 Ω		6.5		ns
Rise Time	tr			11		
Turn-Off Delay Time	td(OFF)			48		
Fall Time	tf			20		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 1.0A		0.65	1.5	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

Transient thermal response (Junction-to-Ambient)

Package outline dimensions
SOP-8L


Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	1.47	1.60	1.73
A1	0.10		0.25
A2		1.45	
b	0.33	0.41	0.51
C	0.19	0.20	0.25
D	4.80	4.85	4.95
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e		1.27	
L	0.38	0.71	1.27
y			0.076
θ	0°		8°