

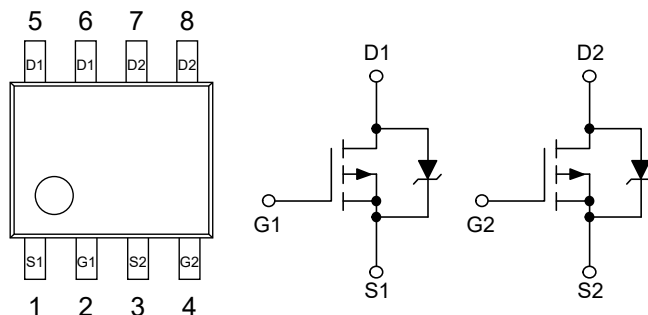
1.Features

- $V_{DS(V)} = -30V$
- $R_{DS(ON)} < 85m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 125m\Omega (V_{GS} = -4.5V)$
- High Density Power MOSFET with Low $R_{DS(ON)}$
- High Efficiency Components in a Dual SOP-8 Package
- Miniature SOP-8 Surface Mount Package Saves Board Space
- I_{DSS} Specified at Elevated Temperature
- Avalanche Energy Specified
- Diode Exhibits High Speed with Soft Recovery

3.Pinning information

Pin	Symbol	Description
2,4	G1,G2	GATE
1,3	S1,S2	SOURCE
5,6,7,8	D1,D2	DRAIN

SOP-8



3.Absolute Maximum Ratings $T_J = 25^\circ C$ unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	± 20	V
Junction-to-Ambient (Note 1)	Thermal Resistance	$R_{\theta JA}$	171	$^\circ C/W$
Total Power Dissipation @ $T_A = 25^\circ C$		P_D	0.73	W
Continuous Drain Current @ $25^\circ C$		I_D	-2.34	A
Continuous Drain Current @ $70^\circ C$		I_D	-1.87	A
Pulsed Drain Current (Note 4)		I_{DM}	-8	A
Junction-to-Ambient (Note 2)	Thermal Resistance	$R_{\theta JA}$	100	$^\circ C/W$
Total Power Dissipation @ $T_A = 25^\circ C$		P_D	1.25	W
Continuous Drain Current @ $25^\circ C$		I_D	-3.05	A
Continuous Drain Current @ $70^\circ C$		I_D	-2.44	A
Pulsed Drain Current (Note 4)		I_{DM}	-12	A



Junction-to-Ambient (Note 3)	Thermal Resistance	R _{θJA}	62.5	°C/W
Total Power Dissipation @ T _A =25°C		P _D	2	W
Continuous Drain Current @ 25°C		I _D	-3.86	A
Continuous Drain Current @ 70°C		I _D	-3.1	A
Pulsed Drain Current (Note 4)		I _{DM}	-15	A
Operating and Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C
Single Pulse Drain-to-Source Avalanche Energy – Starting T _J =25°C (V _{DD} =-30V _{dc} , V _{GS} =-4.5Vdc, Peak I _L =-7.5 Apk, L=5 mH, R _G =25Ω)		E _{AS}	140	mJ
Maximum Lead Temperature for Soldering Purposes, 1/8” from case for 10 seconds		T _L	260	°C



4. Electrical Characteristics $T_J=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	-30			V
Temperature Coefficient (Positive)				-30		mV/ $^{\circ}\text{C}$
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-24V, V_{GS}=0V, T_J=25^{\circ}\text{C}$			-1	μA
		$V_{DS}=-24V, V_{GS}=0V, T_J=125^{\circ}\text{C}$			-20	
		$V_{DS}=-30V, V_{GS}=0V, T_J=25^{\circ}\text{C}$			-2	
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.7	-2.5	V
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-3.05A$		63	85	m Ω
		$V_{GS}=-4.5V, I_D=-1.5A$		90	125	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=-15V, I_D=-3.05A$		5		S
Input Capacitance	C_{iss}	$V_{DS}=-24V, V_{GS}=0V$ $f = 1.0 \text{ MHz}$		520	750	pF
Output Capacitance	C_{oss}			170	325	pF
Reverse Transfer Capacitance	C_{rss}			70	135	pF
Turn-On DelayTime	$t_{D(on)}$	$V_{DD}=-24V, I_D=-3.05A$ $V_{GS}=-10V, R_G=6\Omega$		12	22	ns
Rise Time	t_r			16	30	ns
Turn-Off DelayTime	$t_{D(off)}$			45	80	ns
Fall Time	t_f			45	80	ns
Turn-On DelayTime	$t_{D(on)}$	$V_{DD}=-24V, I_D=-1.5A$ $V_{GS}=-4.5V, R_G=6\Omega$		16		ns
Rise Time	t_r			42		ns
Turn-Off DelayTime	$t_{D(off)}$			32		ns
Fall Time	t_f			35		ns
Total Gate Charge	Q_{tot}	$V_{DS}=-24V$		16	25	nC
Gate-Source Charge	Q_{gs}	$V_{GS}=-10V$		2		nC
Gate-Drain Charge	Q_{gd}	$I_D=-3.05A$		4.5		nC



Diode Forward On-Voltage	V_{SD}	$I_S=-3.05A, V_{GS}=0V$		-0.96	-1.25	V
		$I_S=-3.05A, V_{GS}=0V, T_J=125^{\circ}C$		-0.78		V
Reverse Recovery Time	t_{rr}	$I_S=-3.05A, V_{GS}=0V$ $dis/dt=100A/\mu s$		34		ns
	t_a			18		ns
	t_b			16		ns
Reverse Recovery Stored Charge	Q_{rr}			0.03		μC

- 5. Handling precautions to protect against electrostatic discharge is mandatory.
- 6. Indicates Pulse Test: Pulse Width = 300 μs max, Duty Cycle = 2%.
- 7. Switching characteristics are independent of operating junction temperature.



5.1 Typical Characteristics

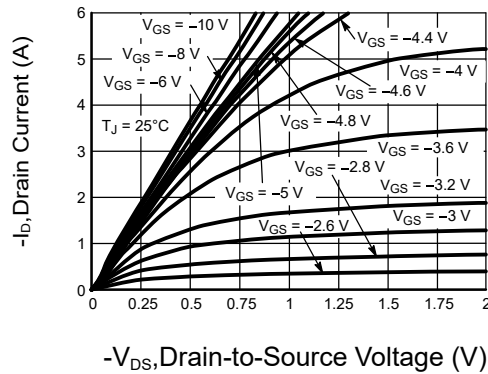


Figure 1: On-Region Characteristics

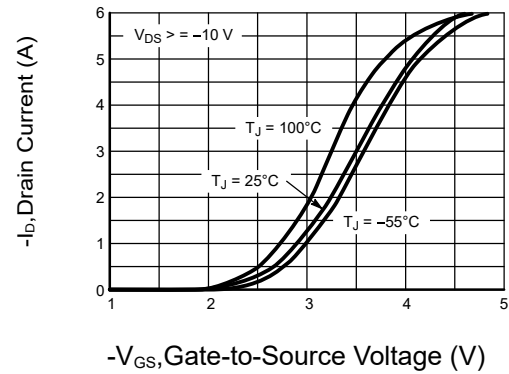


Figure 2: Transfer Characteristics

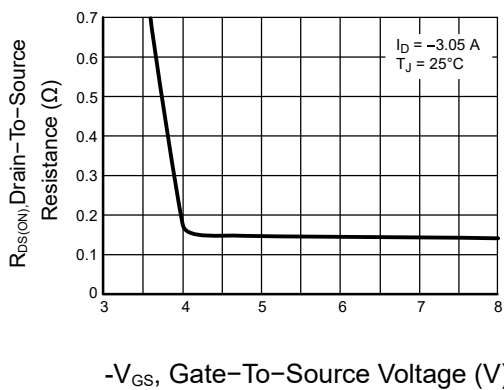


Figure 3: On-Resistance vs. Gate-to-Source Voltage

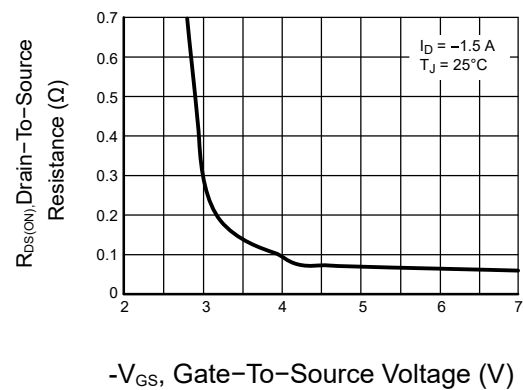


Figure 4: On-Resistance vs. Drain Current and Gate Voltage

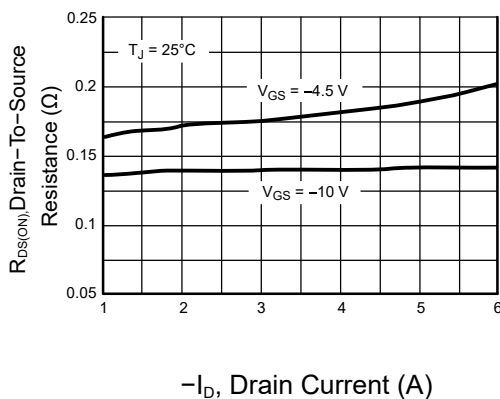


Figure 5: On-Resistance vs. Drain Current and Gate Voltage

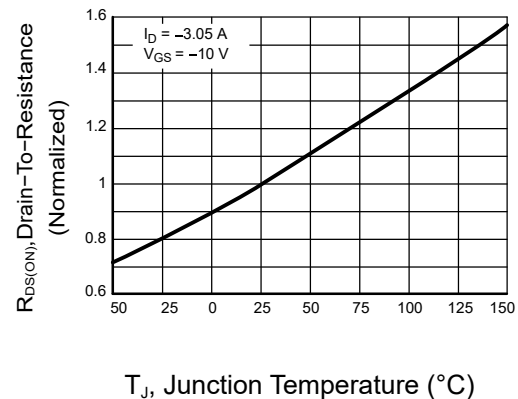


Figure 6: On Resistance Variation with Temperature



5.2 Typical Characteristics

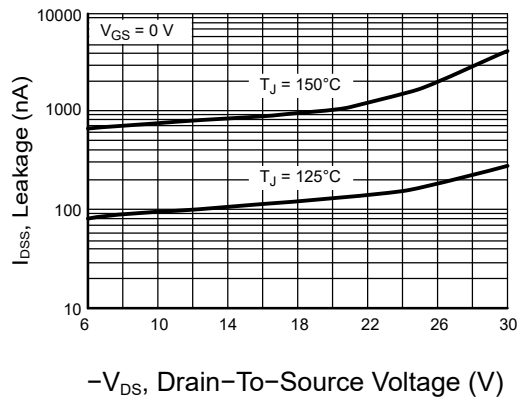


Figure 7: Drain-to-Source Leakage Current vs. Voltage

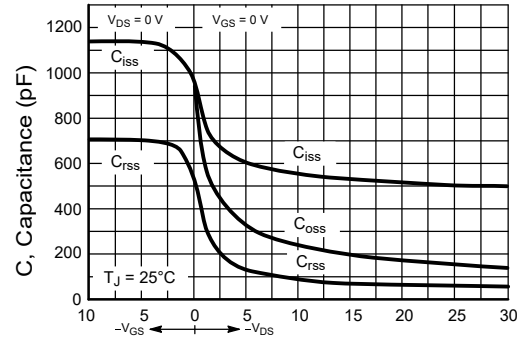


Figure 8: Capacitance Variation

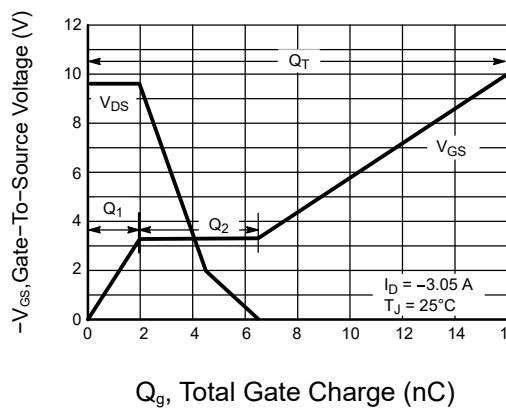


Figure 9: Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

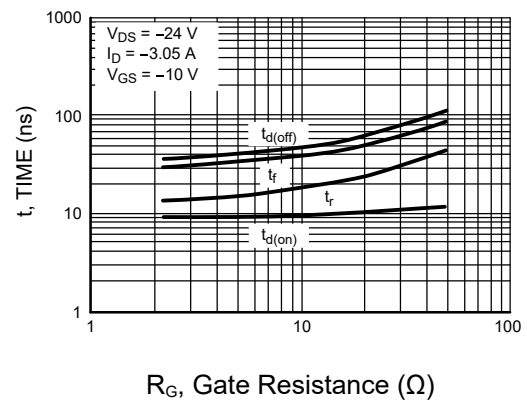


Figure 10: Resistive Switching Time Variation vs. Gate Resistance

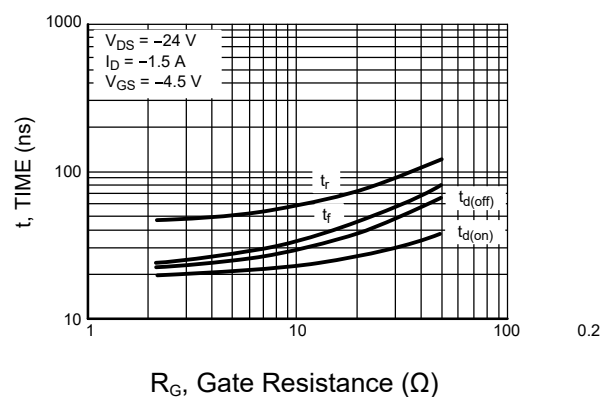


Figure 11: Resistive Switching Time Variation vs. Gate Resistance

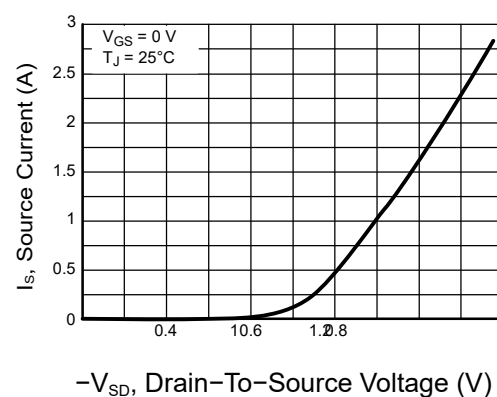
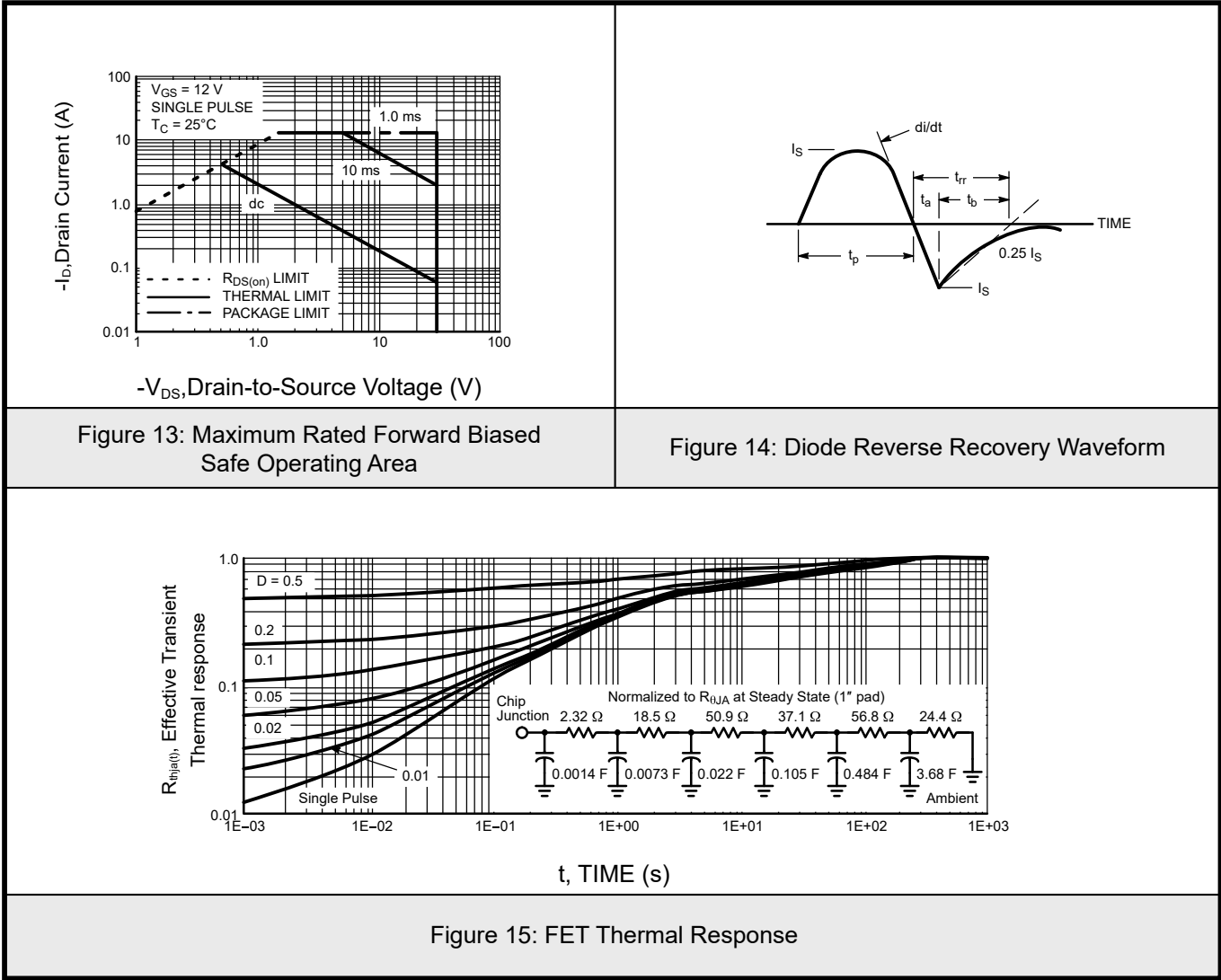


Figure 12: Diode Forward Voltage vs. Current

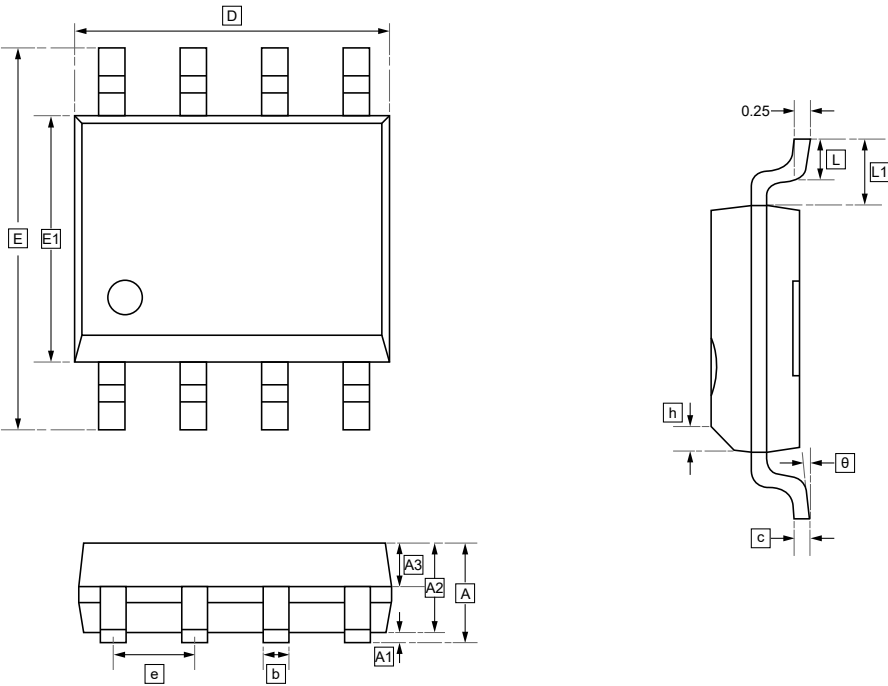


5.3Typical Characteristics





6.SOP-8 Package Outline Dimensions



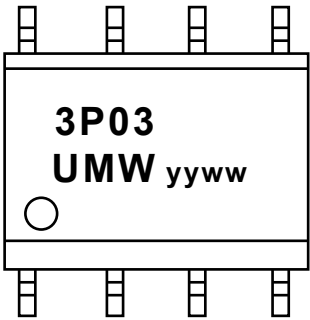
DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	c	D	E	E1	e	h	L
Min	-	0.05	1.30	0.60	0.39	0.20	4.80	5.80	3.80	1.24	0.30	0.50
Max	1.75	0.20	1.50	0.70	0.47	0.24	5.00	6.20	4.00	1.30	0.50	0.80

Symbol	L1	θ
Min	1.00	0°
Max	1.10	8°



7.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW NTMD3P03R2G	SOP-8	3000	Tape and reel



8.Disclaimer

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