

## 1.Features

- $V_{DS(V)}=60V$
- $I_D=35A(V_{GS}=10V)$
- $R_{DS(ON)}<25m\Omega(V_{GS}=10V)$
- $R_{DS(ON)}<30m\Omega(V_{GS}=4.5V)$

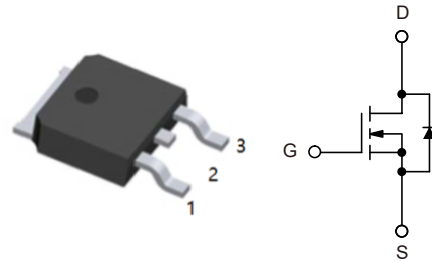
## 2.Product Summary

- TrenchFET<sup>®</sup> Power MOSFET
- 175°C Junction Temperature

## 3.Pinning information

Pin	Symbol	Description
1	G	GATE
2	D	SOURCE
3	S	DRAIN

TO-252(DPAK)  
top view



## 4.Absolute Maximum Ratings $T_C= 25^{\circ}C$

Parameter		Symbol	Value	Units
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current ( $T_J=150^{\circ}C$ ) <sup>b</sup>	$T_C=25^{\circ}C$	$I_D$	35	A
	$T_C=100^{\circ}C$		28	
Pulsed Drain Current		$I_{DM}$	100	
Continuous Source Current (Diode Conduction)		$I_S$	23	
Avalanche Current		$I_{AS}$	20	
Single Avalanche Energy (Duty Cycle $\leq 1\%$ )	$L=0.1mH$	$E_{AS}$	20	mJ
Maximum Power Dissipation	$T_C=25^{\circ}C$	$P_D$	100	W
	$T_A=25^{\circ}C$		$3^a$	W
Storage Temperature Range		$T_J, T_{STG}$	-55 to 175	$^{\circ}C$



## 5. Thermal resistance rating

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient <sup>a</sup>	t ≤ 10 sec	R <sub>thJA</sub>	18	22	°C/W
	Steady State		40	50	°C/W
Maximum Junction-to-Case		R <sub>thJC</sub>	3.2	4	°C/W

Notes:

a. Surface Mounted on 1" x 1" FR4 board, t ≤ 10 sec.



## 6.SPECIFICATIONS (T<sub>J</sub>= 25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	60			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1	2	3	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> =60V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C			50	μA
		V <sub>DS</sub> =60V, V <sub>GS</sub> =0V, T <sub>J</sub> =175°C			250	μA
On-State Drain Current <sup>b</sup>	I <sub>D(ON)</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =10V	50			A
Drain-Source On-State Resistance <sup>b</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =15A		25	31	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =10A		30	45	mΩ
Forward Transconductance <sup>b</sup>	g <sub>FS</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =15A		20		S
<b>Dynamic<sup>a</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1MHz		670		pF
Output Capacitance	C <sub>oss</sub>			140		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			60		pF
Total Gate Charge <sup>c</sup>	Q <sub>g</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =23A		11	17	nC
Gate-Source Charge <sup>c</sup>	Q <sub>gs</sub>			3		nC
Gate-Drain Charge <sup>c</sup>	Q <sub>gd</sub>			3		nC
Turn-On Delay Time <sup>c</sup>	t <sub>D(on)</sub>	V <sub>DD</sub> =30V, R <sub>L</sub> =1.3Ω I <sub>D</sub> ≈ 23A, V <sub>GEN</sub> =10V, R <sub>G</sub> =2.5Ω		8	15	ns
Rise Time <sup>c</sup>	t <sub>r</sub>			15	25	ns
Turn-Off Delay Time <sup>c</sup>	t <sub>D(off)</sub>			30	45	ns
Fall Time <sup>c</sup>	t <sub>f</sub>			25	40	ns



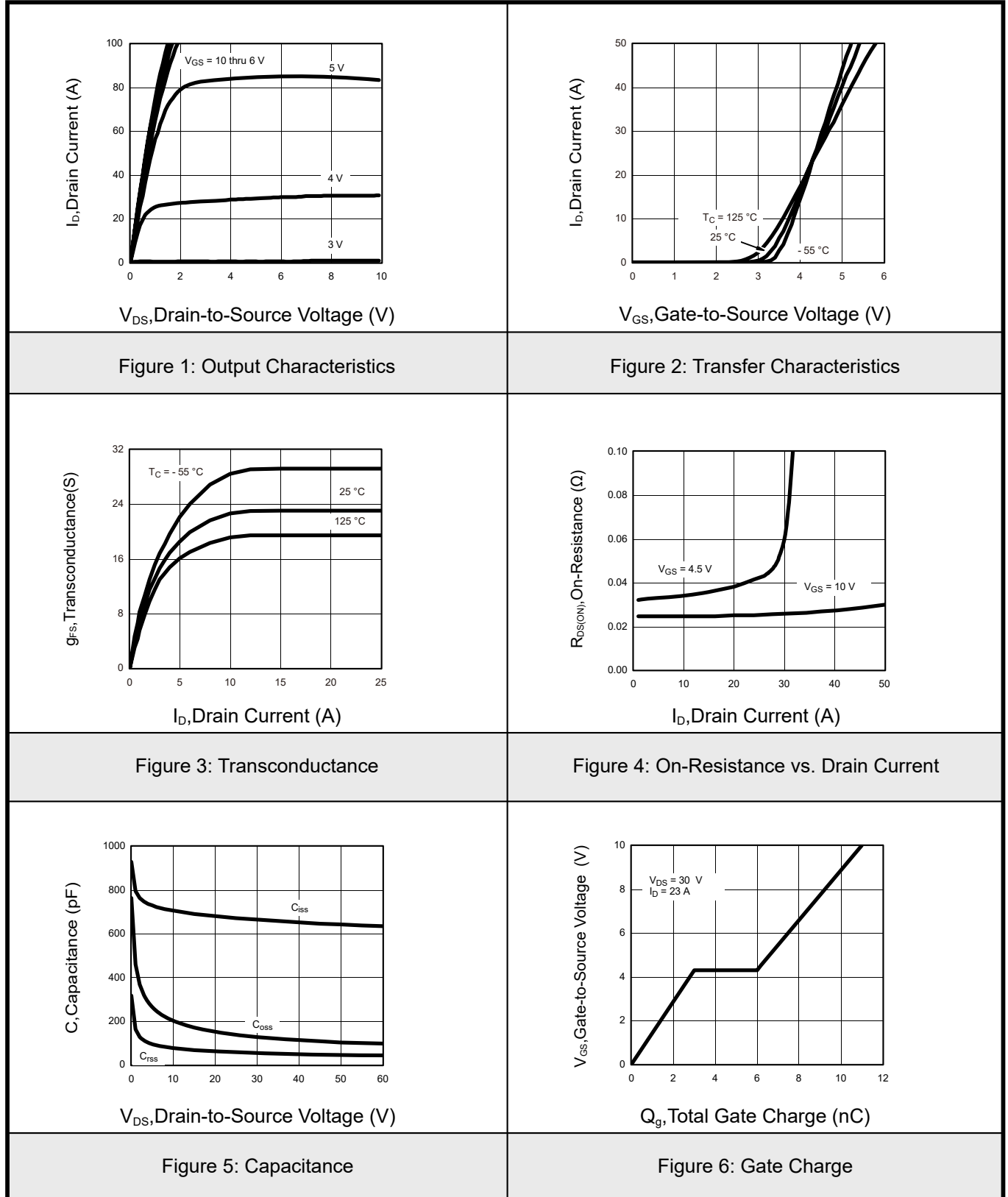
Source-Drain Diode Ratings and Characteristics $T_c=25^\circ\text{C}$						
Pulsed Current	$I_{SM}$				50	A
Diode Forward Voltage	$V_{SD}$	$I_F=15\text{A}, V_{GS}=0\text{V}$		1	1.5	V
Reverse Recovery Time	$t_{rr}$	$I_F=15\text{A}, di/dt=100\text{A}/\mu\text{s}$		30	60	ns

## Notes:

- For design aid only; not subject to production testing.
- Pulse test; pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .
- Independent of operating temperature.

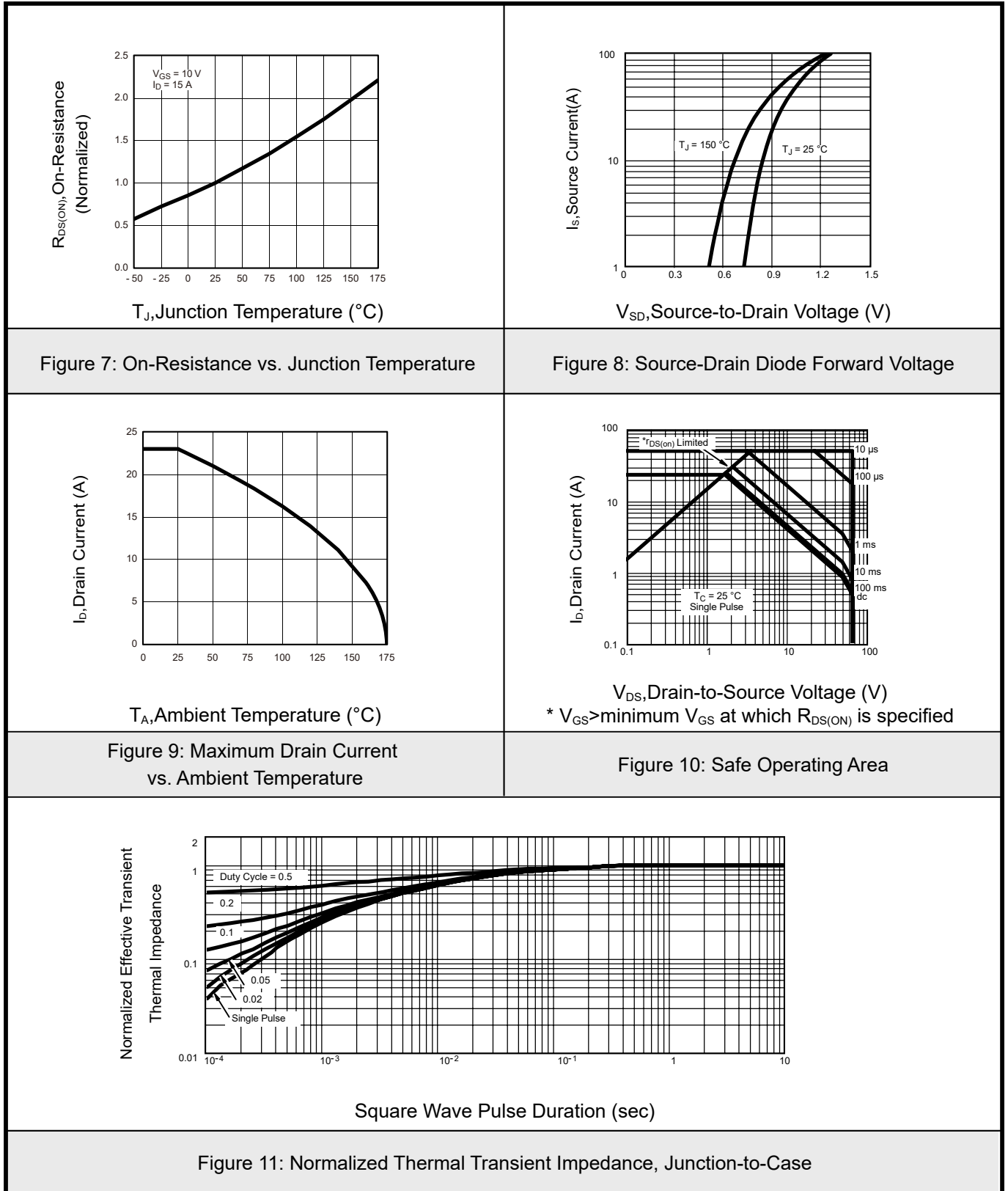


## 7.1 Typical Characteristics



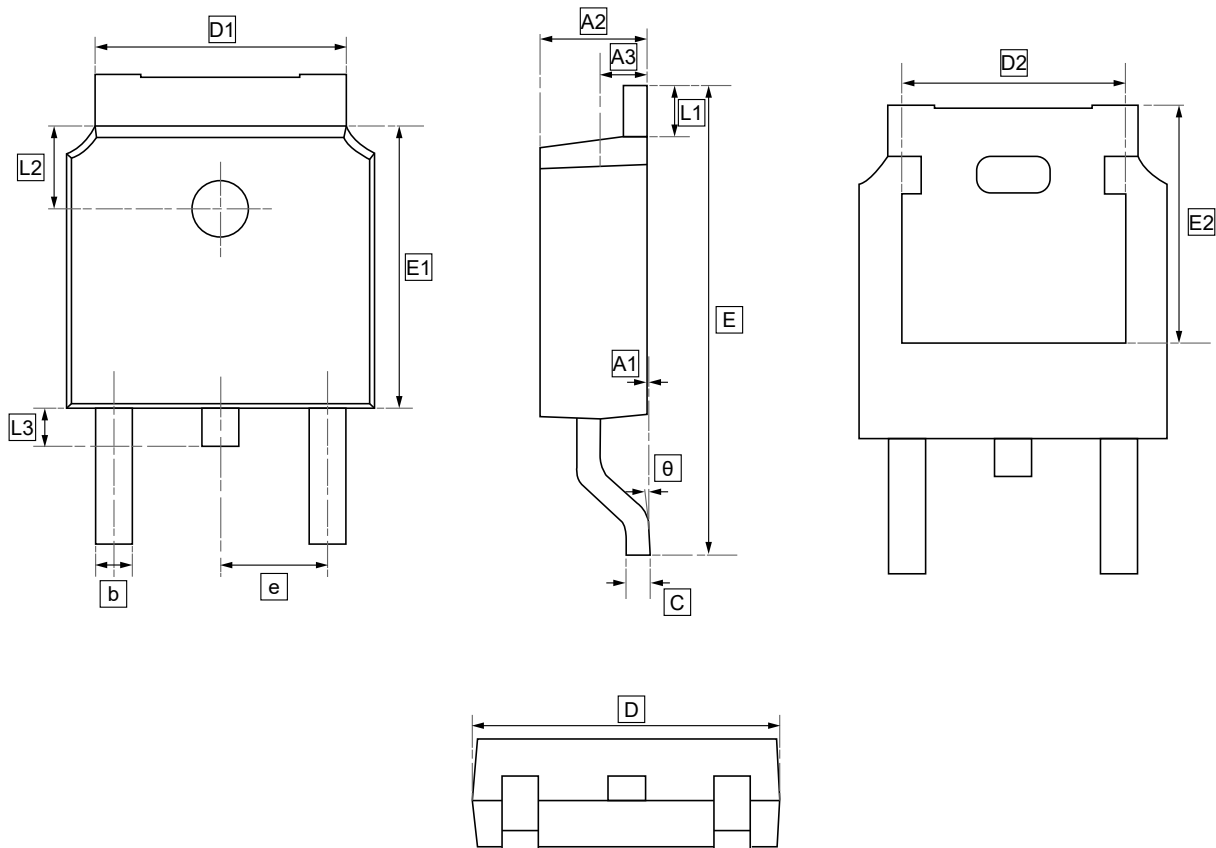


## 7.2 Typical Characteristics





## 8.TO-252 Package Outline Dimensions

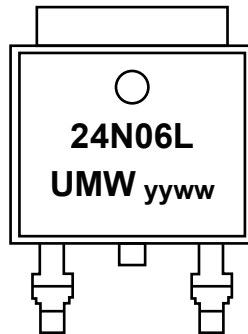


### DIMENSIONS (mm are the original dimensions)

Symbol	A1	A2	A3	b	c	D	D1	D2	E	E1	E2	e	L1	L2	L3	$\theta$
<b>Min</b>	0.00	2.18	0.90	0.65	0.46	6.35	4.95	4.32	9.40	5.97	5.21	2.286	0.89	1.70	0.60	0.00
<b>Max</b>	0.13	2.39	1.10	0.85	0.61	6.73	5.46	4.90	10.41	6.22	5.38	BSC	1.27	1.90	1.00	8.00



## 9. Ordering information



yy: Year Code  
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW NTD24N06LT4G	TO-252	2500	Tape and reel



## 10.Disclaimer

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