

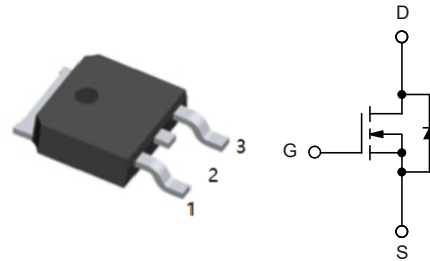
1.Features

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

3.Pinning information

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

TO-252(DPAK)
top view



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

Parameter		Symbol	Value	Units
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ($T_J=150^{\circ}C$) ^b	$T_C=25^{\circ}C$	I_D	35	A
	$T_C=125^{\circ}C$		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
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}C$



5.Thermal Resistance Rating

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ^a	t ≤10s	R _{thJA}	18	22	°C/W
	Steady State		40	50	°C/W
Maximum Junction-to-Case		R _{thJC}	3.2	4	°C/W

Notes:

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



6.SPECIFICATIONS (T_J= 25°C, unless otherwise noted)

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



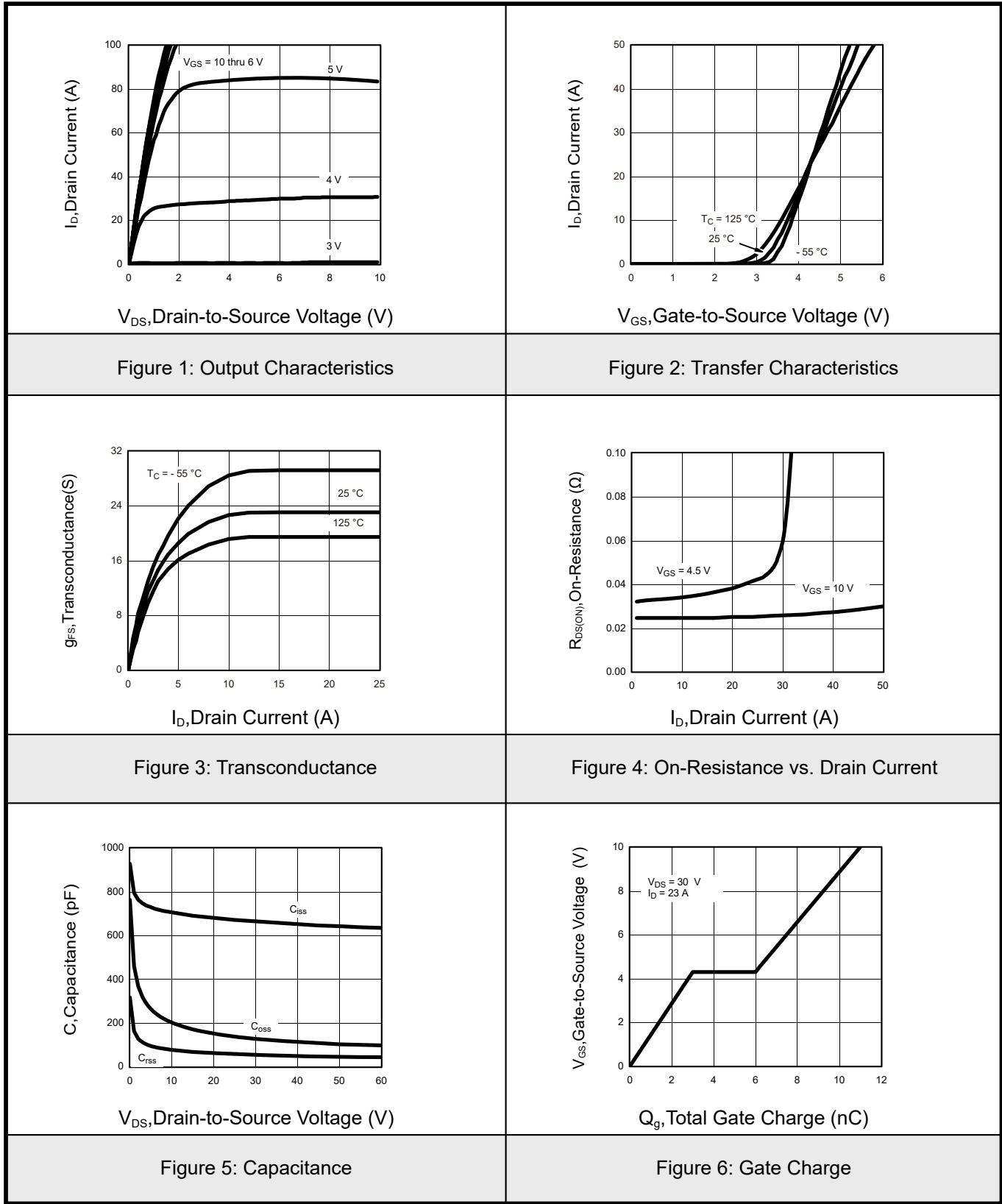
Source-Drain Diode Ratings and Characteristics T _c =25°C						
Pulsed Current	I _{SM}				50	A
Diode Forward Voltage	V _{SD}	I _F =15A, V _{GS} =0V		1	1.5	V
Reverse Recovery Time	t _{rr}	I _F =15A, dI/dt=100A/μs		30	60	ns

Notes:

- a. For design aid only; not subject to production testing.
- b. Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2 %.
- c. Independent of operating temperature.



7.1 Typical Characteristics





7.2 Typical Characteristics

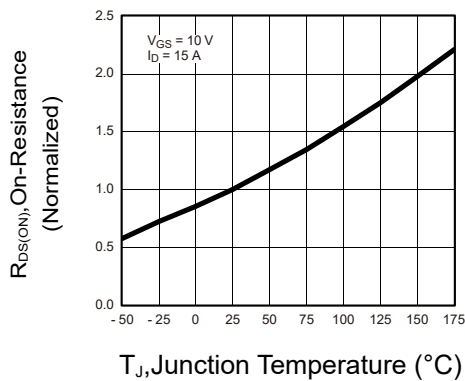


Figure 7: On-Resistance vs. Junction Temperature

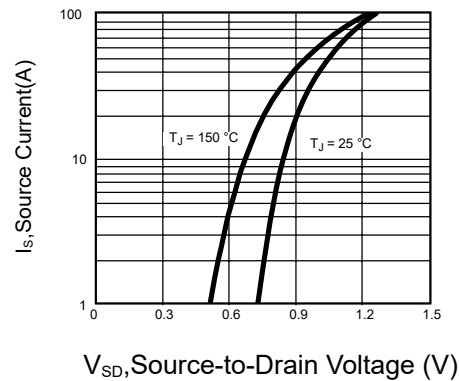


Figure 8: Source-Drain Diode Forward Voltage

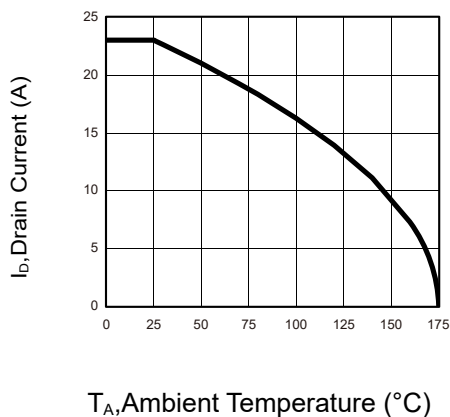


Figure 9: Maximum Drain Current vs. Ambient Temperature

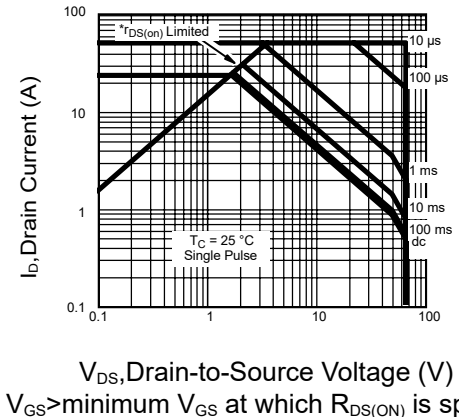


Figure 10: Safe Operating Area

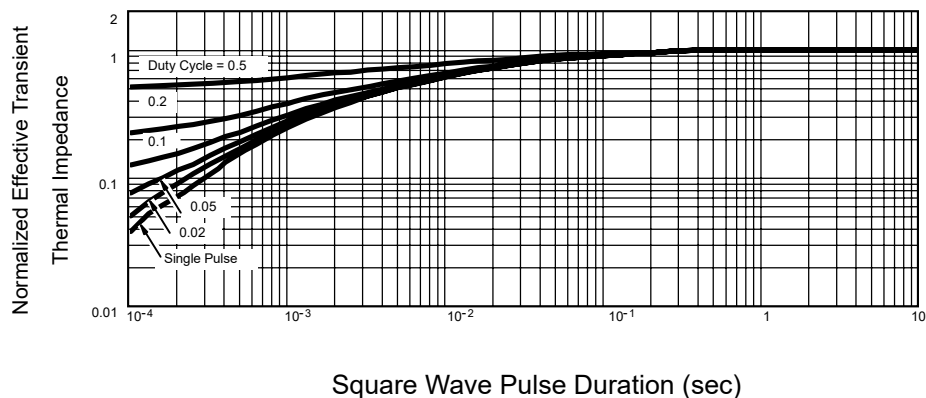
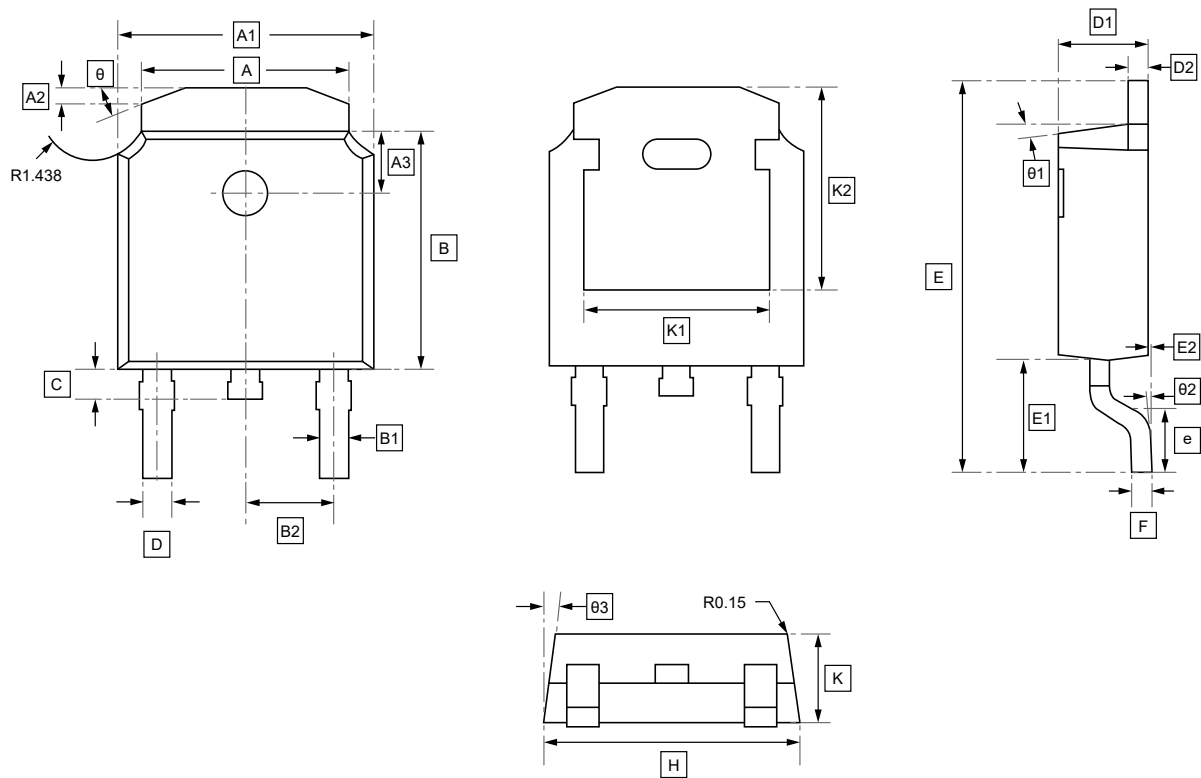


Figure 11: Normalized Thermal Transient Impedance, Junction-to-Case



8.TO-252 Package Outline Dimensions



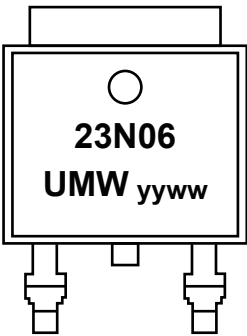
DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	B	B1	B2	C	D	D1	D2	E
Min	5.20	6.50	0.40	1.40	6.00	0.740	2.286	0.60	0.74	2.15	0.50	9.80
Max	5.46	6.70	(typ)	1.80	6.20	0.940	(typ)	1.0	0.86	2.45	(typ)	10.40

Symbol	E1	E2	e	F	H	K	K1	K2	θ	θ1	θ2	θ3
Min	2.60	0.00	1.65	0.50	6.50	2.15	4.63	5.10	20°	7°	0°	7°
Max	3.20	0.127	(typ)	0.60	6.70	2.45	5.03	5.50	(typ)	(typ)	8°	(typ)



9.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW SUD23N06-31	TO-252	2500	Tape and reel



10.Disclaimer

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