

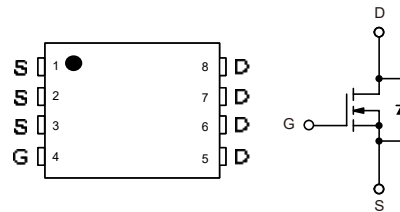
1.Features

- $V_{DS}=40V$
- $I_D=85A$ ($V_{GS}=10V$)
- $R_{DS(ON)} < 1.6m\Omega$ ($V_{GS}=10V$)
- $R_{DS(ON)} < 2.4m\Omega$ ($V_{GS}=4.5V$)

2.Pinning information

Pin	Symbol	Description
1,2,3	S	SOURCE
4	G	GATE
5,6,7,8	D	DRAIN

PDFN-8



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

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ^G	$T_C=25^\circ C$	I_D	85	A
	$T_C=100^\circ C$		67	A
Pulsed Drain Current ^C		I_{DM}	355	A
Continuous Drain Current	$T_A=25^\circ C$	I_{DSM}	27	A
	$T_A=70^\circ C$		22	A
Avalanche Current ^C		I_{AS}, I_{AR}	82	A
Avalanche energy $L=0.1mH$ ^C		E_{AS}, E_{AR}	336	mJ
Power Dissipation ^B	$T_C=25^\circ C$	P_D	83	W
	$T_C=100^\circ C$		33	W
Power Dissipation ^A	$T_A=25^\circ C$	P_{DSM}	2.3	W
	$T_A=70^\circ C$		1.5	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^\circ C$



4.Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient	t≤10s	R _{θJA}	14	17	°C/W
Maximum Junction-to-Ambient	Steady-State		40	55	°C/W
Maximum Junction-to-Case	Steady-State	R _{θJC}	1	1.5	°C/W



5. Electrical Characteristic (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	40			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V			1	μA
		T _J =55°C			5	
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.3	1.9	2.4	V
On state drain current	I _{D(ON)}	V _{GS} =10V, V _{DS} =5V	355			A
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A		1.3	1.6	mΩ
		V _{GS} =4.5V, I _D =20A		1.8	2.4	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =20A		166		S
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.7	1	V
Maximum Body-Diode Continuous Current ^G	I _S				85	A
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =20V, f=1MHz	4360	5458	6550	pF
Output Capacitance	C _{oss}		970	1395	1815	pF
Reverse Transfer Capacitance	C _{rss}		30	103	176	pF
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	0.5	1	1.6	Ω
Total Gate Charge	Q _g (10V)	V _{GS} =10V, V _{DS} =20V I _D =20A	58	72.8	88	nC
Total Gate Charge	Q _g (4.5V)		24	31	44	nC
Gate Source Charge	Q _{gs}			14.8		nC
Gate Drain Charge	Q _{gd}			10.8		nC
Turn-On DelayTime	t _{D(on)}	V _{GS} =10V, V _{DS} =20V R _L =1Ω, R _{GEN} =3Ω		14.8		ns
Turn-On Rise Time	t _r			5.5		ns
Turn-Off DelayTime	t _{D(off)}			61.3		ns
Turn-Off Fall Time	t _f			10		ns
Body Diode Reverse Recovery Time	t _{rr}	I _F =20A, dI/dt=500A/μs	16	23.9	31	ns
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =20A, dI/dt=500A/μs	59	84.6	110	nC



- A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The value in any given application depends on the user's specific board design.
- B. The power dissipation P_D is based on $T_{J(\text{MAX})} = 150^\circ\text{C}$, using $\leq 10\text{s}$ junction-to-ambient thermal resistance., and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.
- C. Repetitive rating, pulse width limited by junction temperature $T_{J(\text{MAX})} = 150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J = 25^\circ\text{C}$.
- D. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.
- E. The static characteristics in Figures 1 to 6 are obtained using $<300\mu\text{s}$ pulses, duty cycle 0.5% max.
- F. These curves are based on the junction-to-ambient thermal impedance which is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, assuming a maximum junction temperature of $T_{J(\text{MAX})} = 150^\circ\text{C}$. The SOA curve provides a single pulse rating.
- G. The maximum current rating is package limited.
- H. These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.



6.1 Typical characteristic

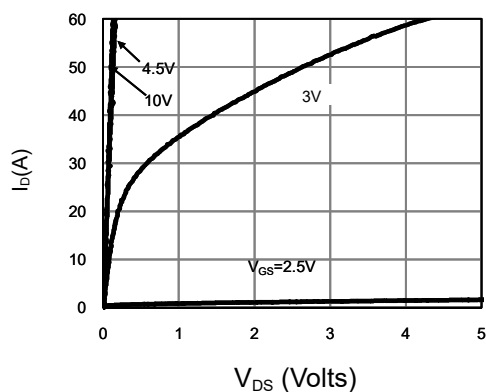


Fig 1: On-Region Characteristics (Note E)

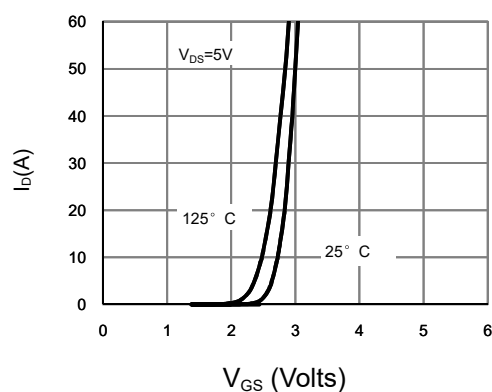


Figure 2: Transfer Characteristics (Note E)

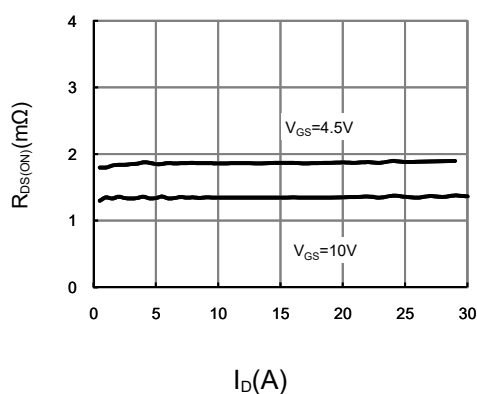


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

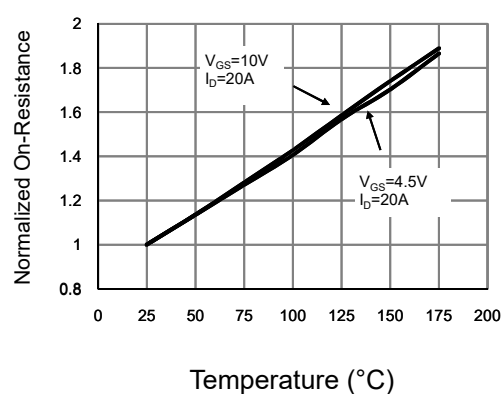


Figure 4: On-Resistance vs. Junction Temperature (Note E)

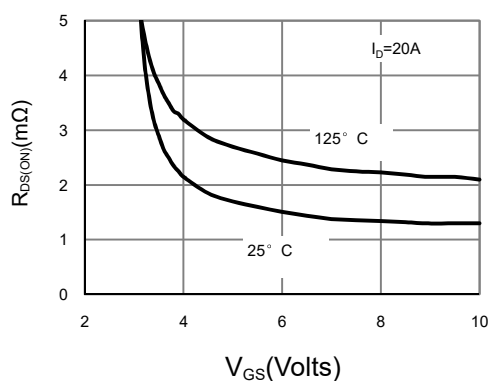


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

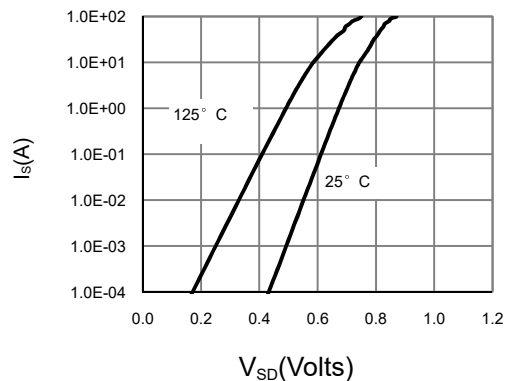


Figure 6: Body-Diode Characteristics (Note E)



6.2 Typical characteristic

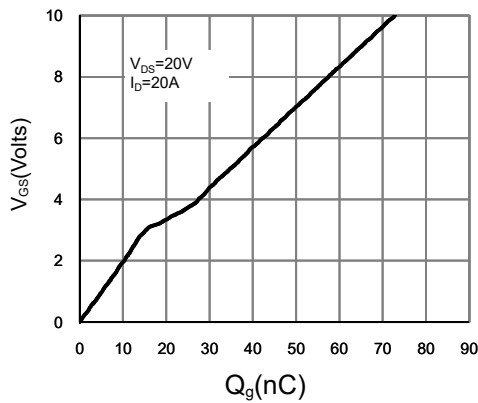


Figure 7: Gate-Charge Characteristics

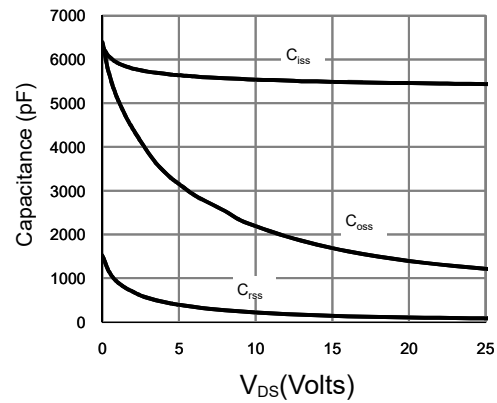


Figure 8: Capacitance Characteristics

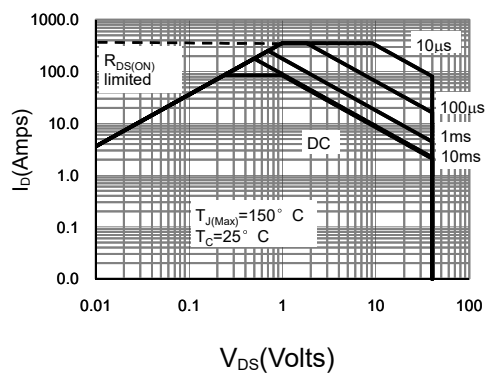


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

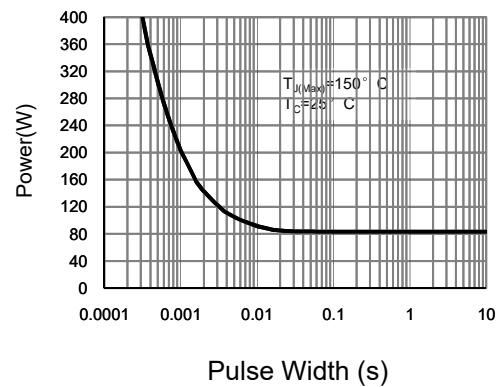


Figure 10: Single Pulse Power Rating Junction-to-Case (Note F)

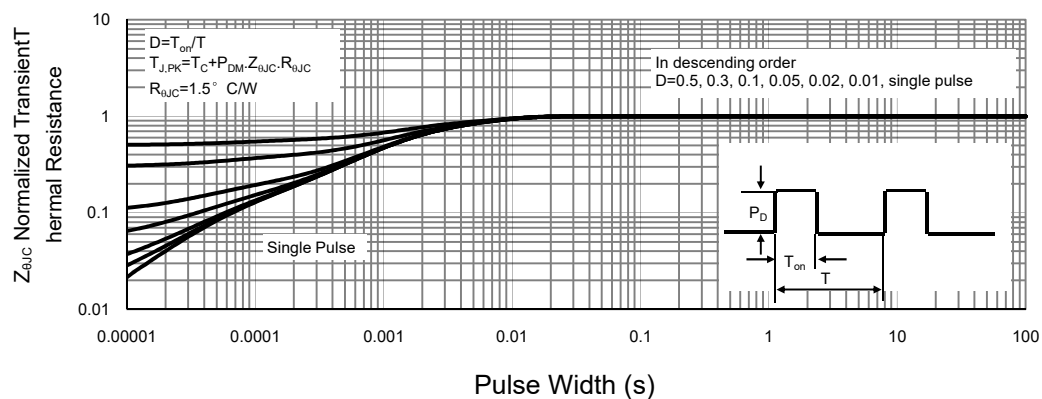


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)



6.3 Typical characteristic

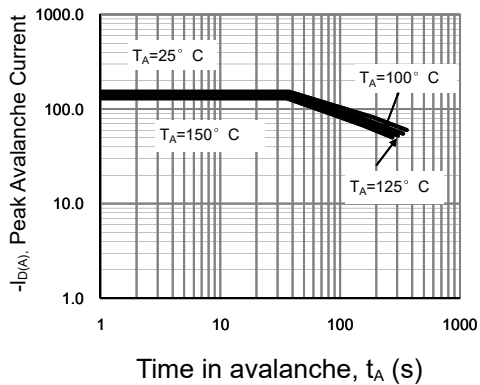


Figure 12: Single Pulse Avalanche capability

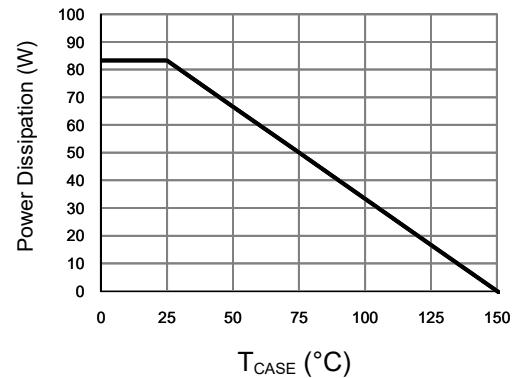


Figure 13: Power De-rating (Note B)

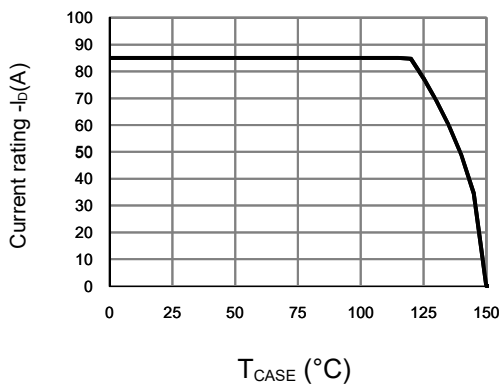


Figure 14: Current De-rating (Note B)

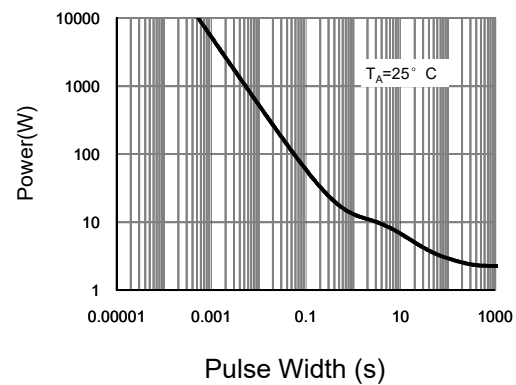


Figure 15: Single Pulse Power Rating Junction-to-Ambient (Note H)

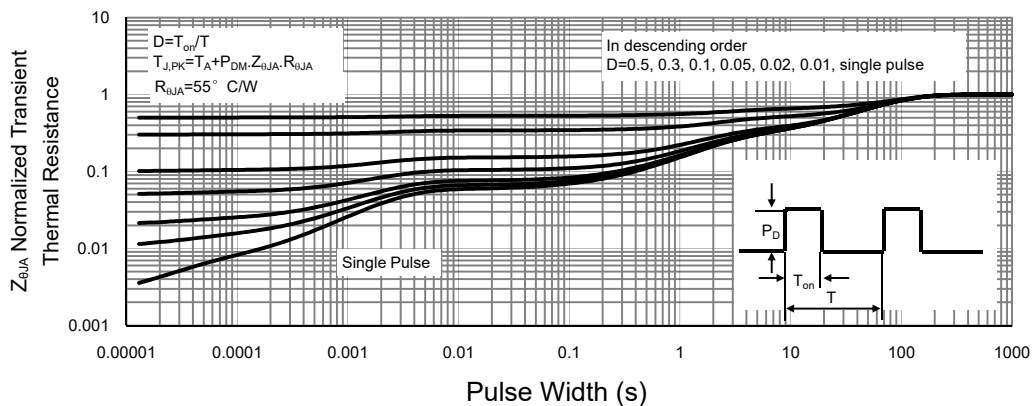
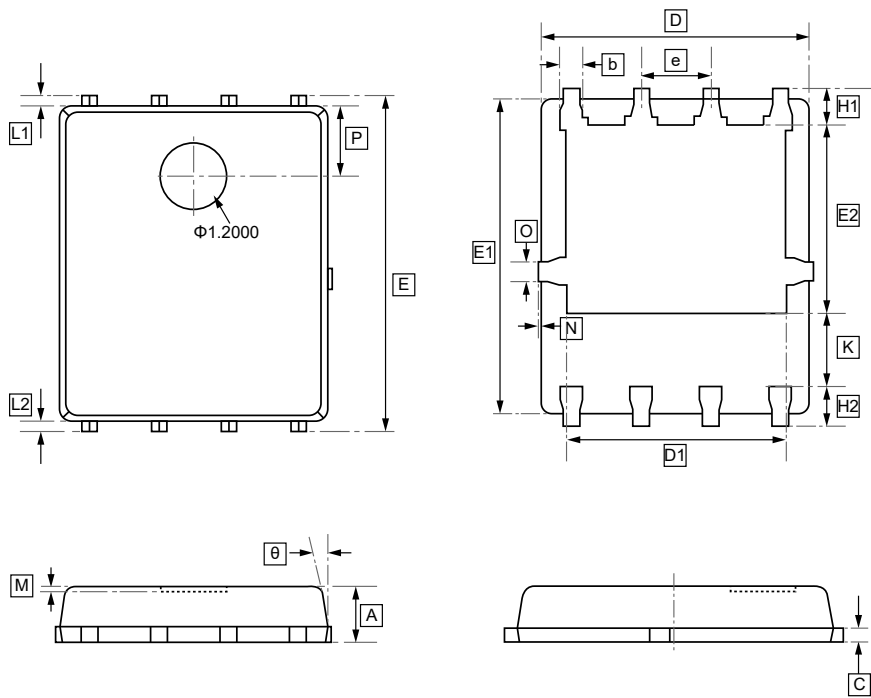


Figure 16: Normalized Maximum Transient Thermal Impedance (Note H)



7.PDFN-8(5.8x4.9) Package Outline Dimensions



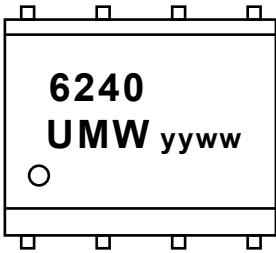
DIMENSIONS (mm are the original dimensions)

Symbol	A	b	C	D	D1	E	E1	E2	e	H1	H2	K
Min	0.90	0.35	0.20	4.80	3.90	6.05	5.65	2.30	1.27	0.62	0.60	1.23
Max	1.10	0.45	0.35	5.00	4.10	6.25	5.85	2.50	BSC	0.82	0.80	1.43

Symbol	L1/L2	θ	M	N	O	P
Min	0.2	8°	0.08	0.00	0.35	1.28
Max	REF	12°	REF	0.10	REF	REF



8.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW AON6240	PDFN-8	3000	Tape and reel



9.Disclaimer

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