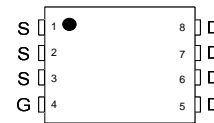
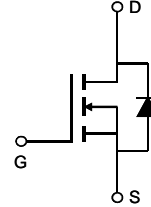


**Product Summary**

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



**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	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>G</sup>	$I_D$	$T_C = 25^\circ C$	A
		$T_C = 100^\circ C$	
Pulsed Drain Current <sup>C</sup>	$I_{DM}$	355	
Continuous Drain Current	$I_{DSM}$	$T_A = 25^\circ C$	A
		$T_A = 70^\circ C$	
Avalanche Current <sup>C</sup>	$I_{AS}, I_{AR}$	82	A
Avalanche energy $L=0.1mH$ <sup>C</sup>	$E_{AS}, E_{AR}$	336	mJ
Power Dissipation <sup>B</sup>	$P_D$	$T_C = 25^\circ C$	W
		$T_C = 100^\circ C$	
Power Dissipation <sup>A</sup>	$P_{DSM}$	$T_A = 25^\circ C$	W
		$T_A = 70^\circ C$	
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ C$

**Thermal Characteristics**

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient	$R_{\theta JA}$	14	17	$^\circ C/W$
Maximum Junction-to-Ambient		Steady-State	40	55
Maximum Junction-to-Case	$R_{\theta JC}$	1	1.5	$^\circ C/W$

### Electrical Characteristics ( $T_J=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
$BV_{DSS}$	Drain-Source Breakdown Voltage	$I_D=250\mu\text{A}$ , $V_{GS}=0\text{V}$	40			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=40\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
		$T_J=55^\circ\text{C}$			5	
$I_{GSS}$	Gate-Body leakage current	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 20\text{V}$			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}$ , $I_D=250\mu\text{A}$	1.3	1.9	2.4	V
$I_{D(ON)}$	On state drain current	$V_{GS}=10\text{V}$ , $V_{DS}=5\text{V}$	355			A
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10\text{V}$ , $I_D=20\text{A}$		1.3	1.6	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$ , $I_D=20\text{A}$		1.8	2.4	$\text{m}\Omega$
$g_{FS}$	Forward Transconductance	$V_{DS}=5\text{V}$ , $I_D=20\text{A}$		166		S
$V_{SD}$	Diode Forward Voltage	$I_S=1\text{A}$ , $V_{GS}=0\text{V}$		0.7	1	V
$I_S$	Maximum Body-Diode Continuous Current <sup>G</sup>				85	A
$C_{iss}$	Input Capacitance	$V_{GS}=0\text{V}$ , $V_{DS}=20\text{V}$ , $f=1\text{MHz}$	4360	5458	6550	pF
$C_{oss}$	Output Capacitance		970	1395	1815	pF
$C_{riss}$	Reverse Transfer Capacitance		30	103	176	pF
$R_g$	Gate resistance	$V_{GS}=0\text{V}$ , $V_{DS}=0\text{V}$ , $f=1\text{MHz}$	0.5	1.0	1.6	$\Omega$
$Q_g(10\text{V})$	Total Gate Charge	$V_{GS}=10\text{V}$ , $V_{DS}=20\text{V}$ , $I_D=20\text{A}$	58	72.8	88	nC
$Q_g(4.5\text{V})$	Total Gate Charge		24	31	44	nC
$Q_{gs}$	Gate Source Charge			14.8		nC
$Q_{gd}$	Gate Drain Charge			10.8		nC
$t_{D(on)}$	Turn-On DelayTime	$V_{GS}=10\text{V}$ , $V_{DS}=20\text{V}$ , $R_L=1\Omega$ , $R_{GEN}=3\Omega$		14.8		ns
$t_r$	Turn-On Rise Time			5.5		ns
$t_{D(off)}$	Turn-Off DelayTime			61.3		ns
$t_f$	Turn-Off Fall Time			10		ns
$t_{rr}$	Body Diode Reverse Recovery Time	$I_F=20\text{A}$ , $dI/dt=500\text{A}/\mu\text{s}$	16	23.9	31	ns
$Q_{rr}$	Body Diode Reverse Recovery Charge	$I_F=20\text{A}$ , $dI/dt=500\text{A}/\mu\text{s}$	59	84.6	110	nC

A. The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ\text{C}$ . The Power dissipation  $P_{DSM}$  is based on  $R_{\theta JA}$  and the maximum allowed junction temperature of  $150^\circ\text{C}$ . The value in any given application depends on the user's specific board design.

B. The power dissipation  $P_D$  is based on  $T_{J(MAX)}=150^\circ\text{C}$ , using junction-to-case 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  $T_{J(MAX)}=150^\circ\text{C}$ . 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 case  $R_{\theta JC}$  and case 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-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of  $T_{J(MAX)}=150^\circ\text{C}$ . 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 in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ\text{C}$ .

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

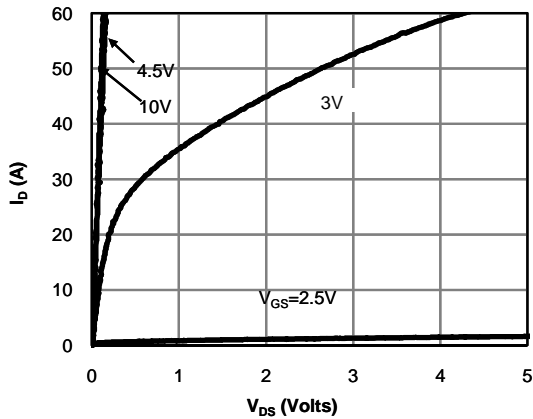


Fig 1: On-Region Characteristics (Note E)

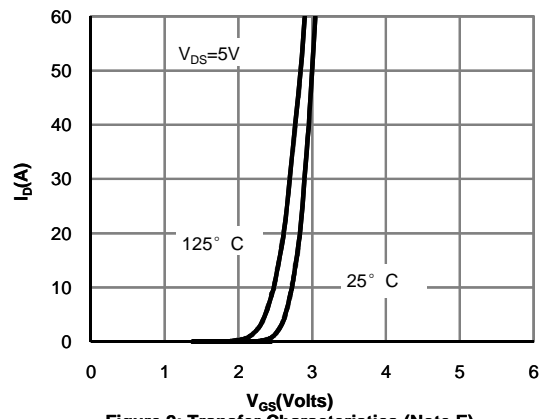


Figure 2: Transfer Characteristics (Note E)

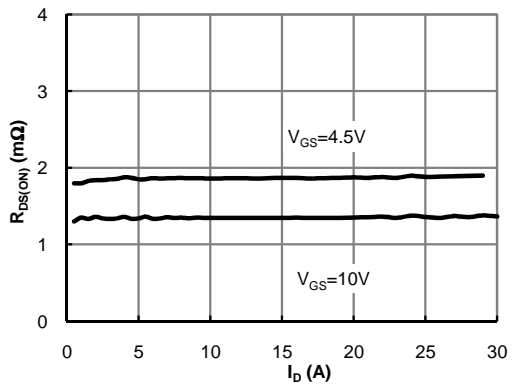


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

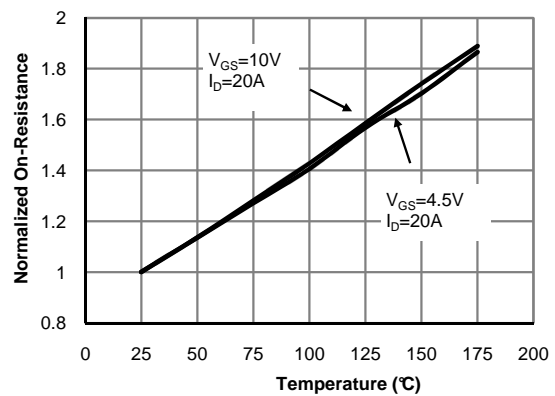


Figure 4: On-Resistance vs. Junction Temperature (Note E)

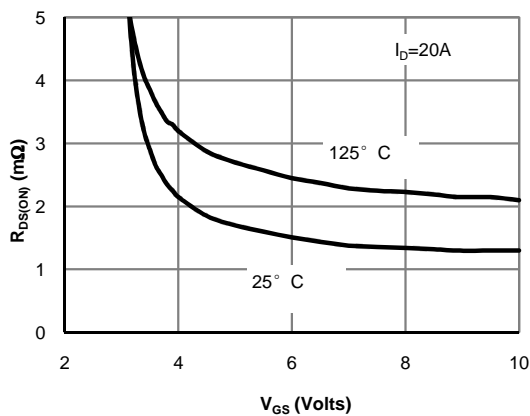


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

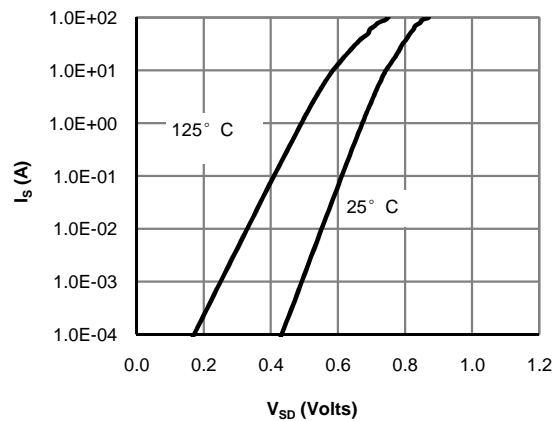


Figure 6: Body-Diode Characteristics (Note E)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

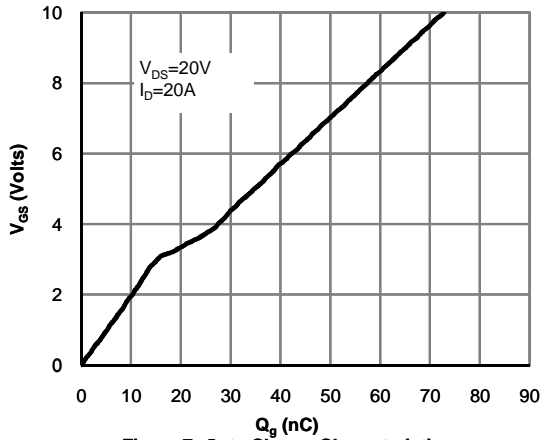


Figure 7: Gate-Charge Characteristics

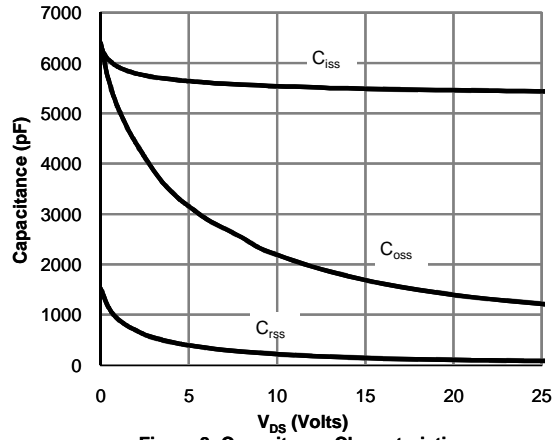


Figure 8: Capacitance Characteristics

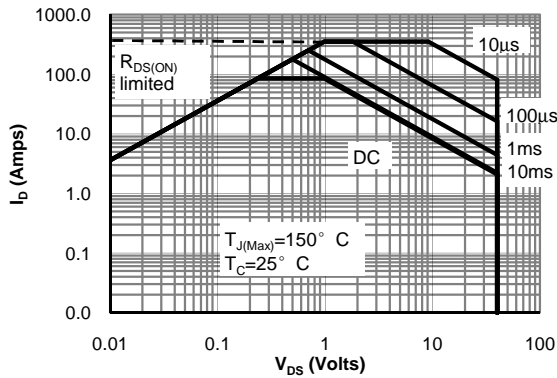


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

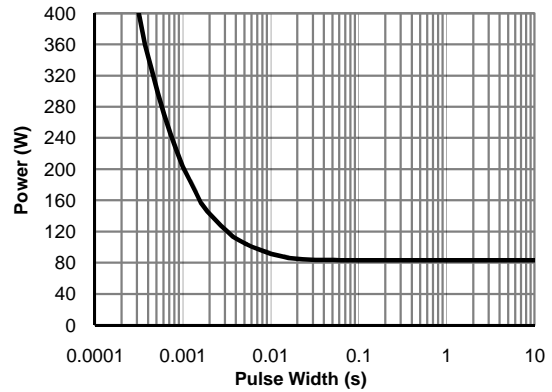


Figure 10: Single Pulse Power Rating Junction-to-Case (Note F)

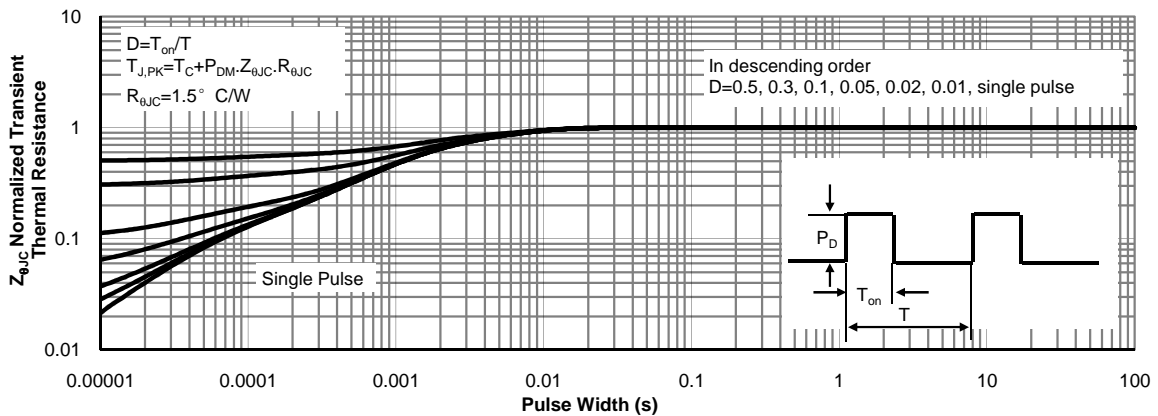


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

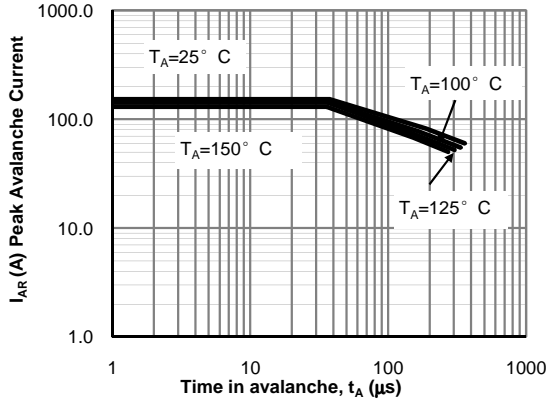


Figure 12: Single Pulse Avalanche capability (Note C)

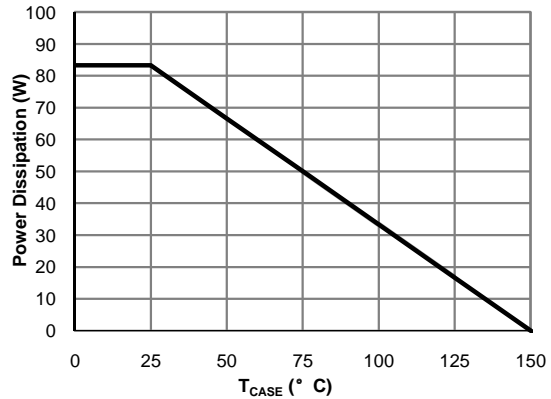


Figure 13: Power De-rating (Note F)

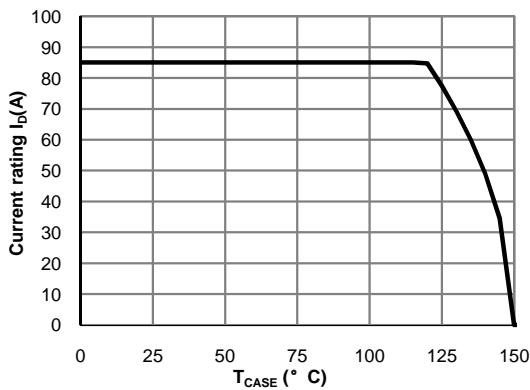


Figure 14: Current De-rating (Note F)

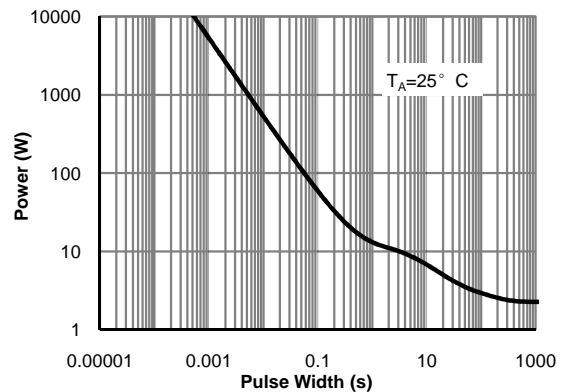


Figure 15: Single Pulse Power Rating Junction-to-Ambient (Note H)

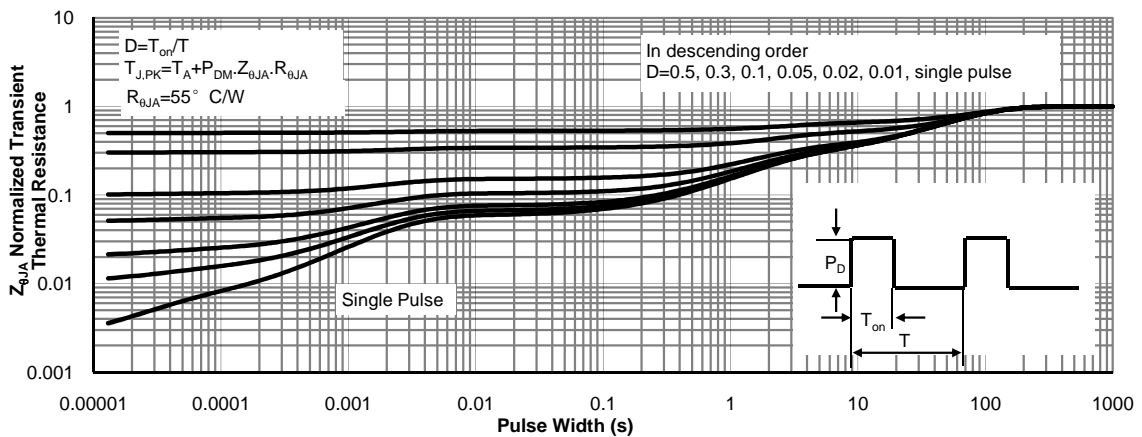
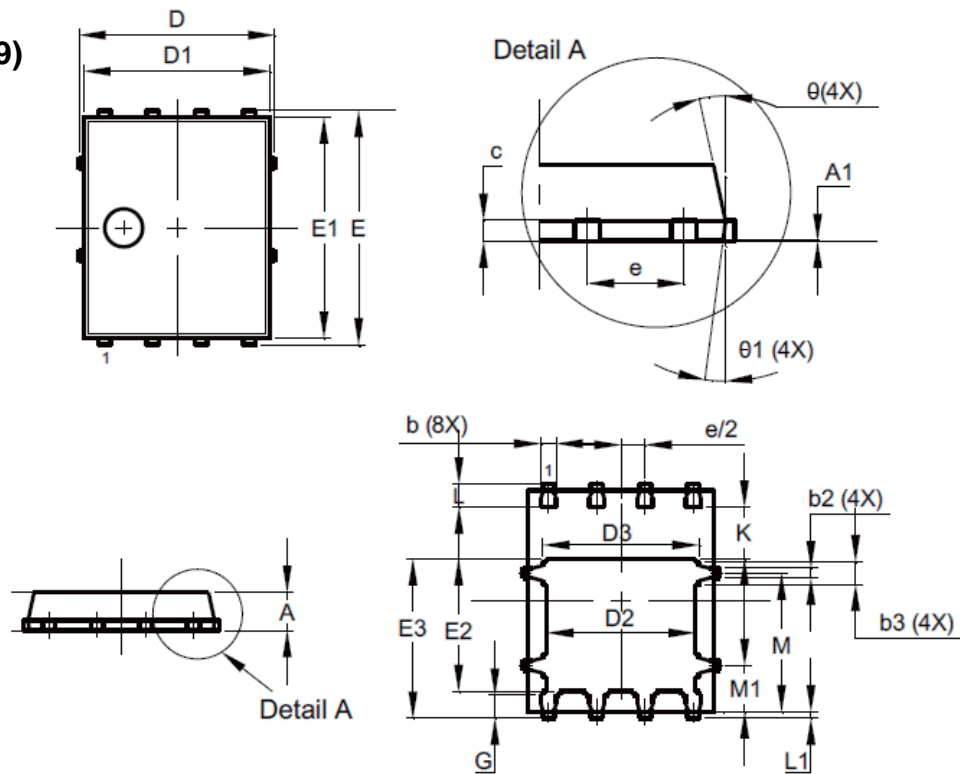


Figure 16: Normalized Maximum Transient Thermal Impedance (Note H)

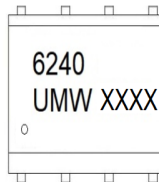
Package Dimensions

PDFN-8(5.8X4.9)



PowerDI5060-8			
Dim	Min	Max	Typ
A	0.90	1.10	1.00
A1	0.00	0.05	—
b	0.33	0.51	0.41
b2	0.200	0.350	0.273
b3	0.40	0.80	0.60
c	0.230	0.330	0.277
D	5.15 BSC		
D1	4.70	5.10	4.90
D2	3.70	4.10	3.90
D3	3.90	4.30	4.10
E	6.15 BSC		
E1	5.60	6.00	5.80
E2	3.28	3.68	3.48
E3	3.99	4.39	4.19
e	1.27 BSC		
G	0.51	0.71	0.61
K	0.51	—	—
L	0.51	0.71	0.61
L1	0.100	0.200	0.175
M	3.235	4.035	3.635
M1	1.00	1.40	1.21
$\theta$	10°	12°	11°
$\theta1$	6°	8°	7°
All Dimensions in mm			

**Marking**



**Ordering information**

Order code	Package	Baseqty	Deliverymode
UMW AON6240	PDFN-8	3000	Tape and reel

单击下面可查看定价，库存，交付和生命周期等信息

[>>UMW\(友台半导体\)](#)