

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
18V	2.5m $\Omega$ @4.5V	50A
	3.0m $\Omega$ @2.5V	

### Feature

- Trench Power MOSFET
- Excellent  $R_{DS(on)}$
- Low Gate Charge
- ESD Protected

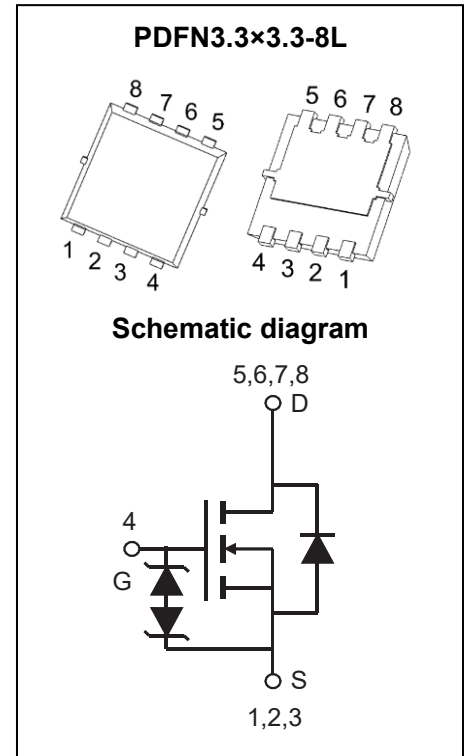
### Application

- Load Switch
- Battery Switch

### MARKING:



E1803U= Device code  
 Solid dot=Pin1 indicator  
 XX=Date Code



### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	18	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>(1)</sup>	$I_D$	50	A
Pulsed Drain Current <sup>(1,2)</sup>	$I_{DM}$	200	A
Power Dissipation	$P_D$	3	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	42	$^\circ\text{C/W}$
Total Power Dissipation <sup>(3)</sup>	$P_D$	3	W
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	

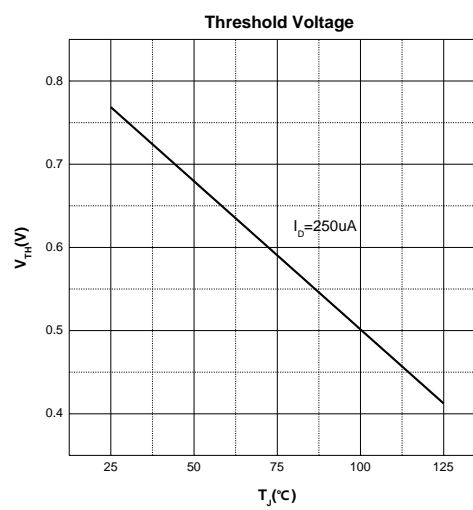
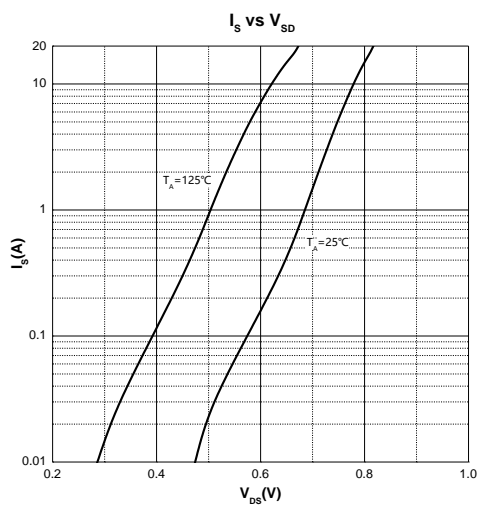
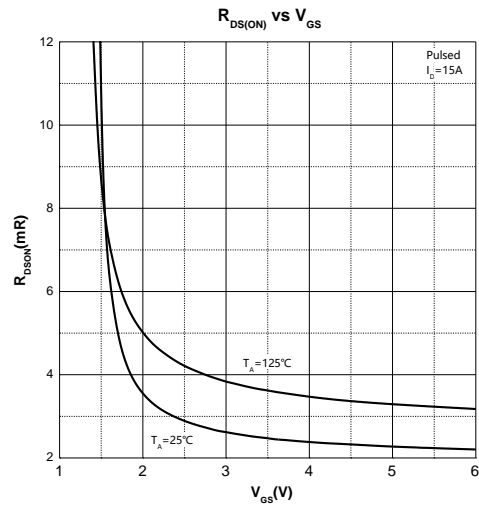
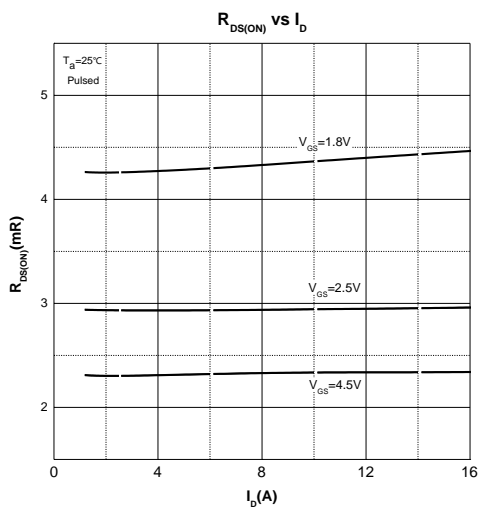
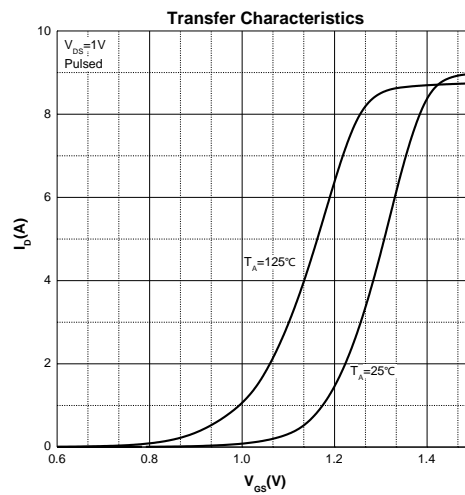
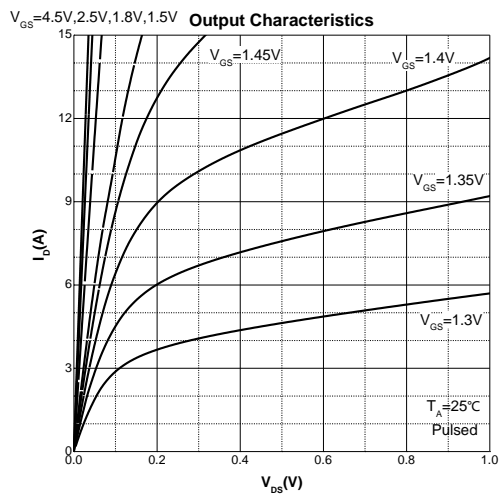
**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>STATIC PARAMETERS</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	18			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±4.5V, V <sub>DS</sub> = 0V			±1	μA
		V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V			±10	μA
Gate threshold voltage <sup>(4)</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.4	0.75	1.0	V
Drain-source on-resistance <sup>(4)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 15A		2.5	3.0	mΩ
		V <sub>GS</sub> = 3.8V, I <sub>D</sub> = 15A		2.6	3.1	
		V <sub>GS</sub> = 3.1V, I <sub>D</sub> = 15A		2.7	3.2	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 15A		3.0	5.0	
		V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 15A		4.4	7.0	
Forward tranconductance <sup>(4)</sup>	g <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 7A	8			S
Diode forward voltage <sup>(4)</sup>	V <sub>SD</sub>	I <sub>S</sub> = 1A, V <sub>GS</sub> = 0V			1	V
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz		3048		pF
Output Capacitance	C <sub>oss</sub>			596		
Reverse Transfer Capacitance	C <sub>rss</sub>			47		
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A		26.5		nC
Gate-source charge	Q <sub>gs</sub>			2.4		
Gate-drain charge	Q <sub>gd</sub>			7.6		
<b>SWITCHING PARAMETERS</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = 5V, V <sub>DD</sub> = 10V, I <sub>D</sub> = 3A R <sub>L</sub> = 1.35Ω, R <sub>GEN</sub> = 3Ω		4.5		ns
Turn-on rise time	t <sub>r</sub>			8.9		
Turn-off delay time	t <sub>d(off)</sub>			85		
Turn-off fall time	t <sub>f</sub>			24		
<b>Drain-Source Diode Characteristics<sup>(5)</sup></b>						
Diode Forward Current	I <sub>S</sub>				15	A

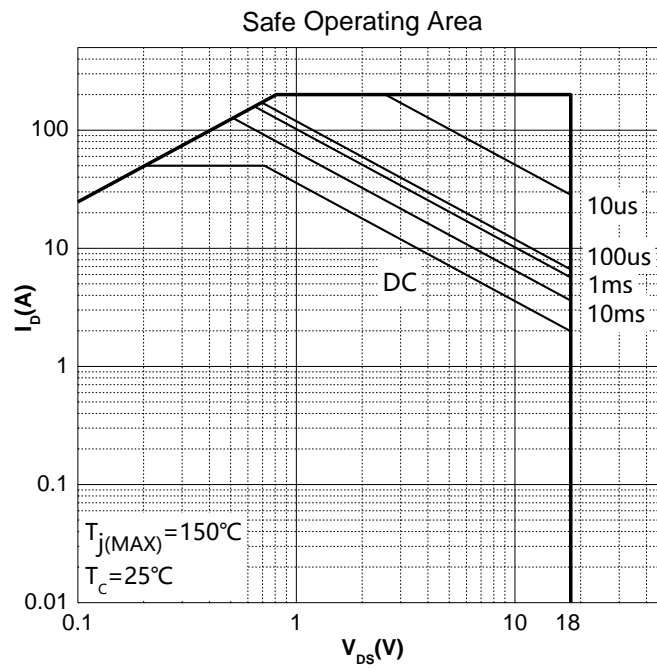
Notes :

- 1.The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- 2.Pulse Test:Pulse Width < 10us, Duty Cycle < 0.5%.
- 3.The power dissipation is limited by 150°C junction temperature
- 4.Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 0.5%.
- 5.The data is theoretically the same as I<sub>D</sub> , in real applications , should be limited by total power dissipation.

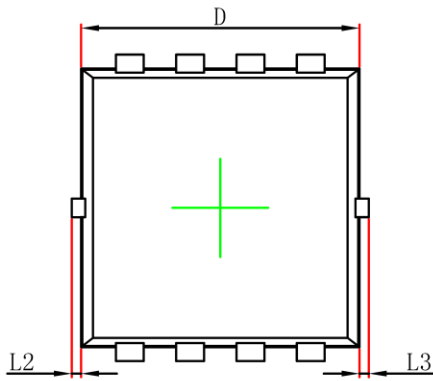
**Typical Electrical and Thermal Characteristics**



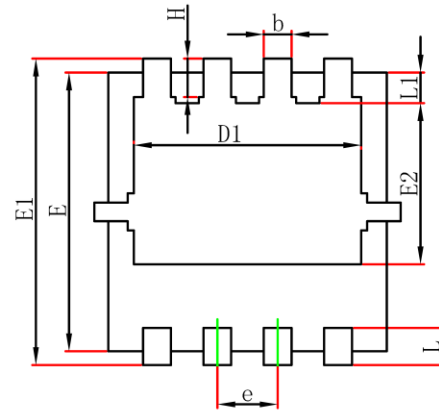
## Typical Electrical and Thermal Characteristics



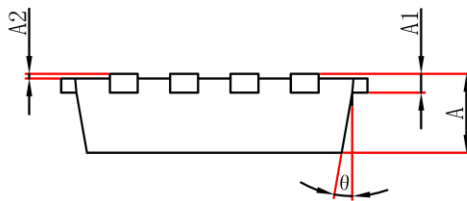
## PDFN3.3×3.3-8L Package Information



Top View  
[顶视图]



Bottom View  
[背视图]



Side View  
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.152REF		0.006REF	
A2	0.000	0.050	0.000	0.002
D	2.900	3.200	0.114	0.126
D1	2.300	2.600	0.091	0.102
E	2.900	3.200	0.114	0.126
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0.000	0.100	0.000	0.004
L3	0.000	0.100	0.000	0.004
H	0.315	0.515	0.012	0.020
$\theta$	0°	12°	0°	12°