

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	60mΩ@10V	18A
	70mΩ@4.5V	

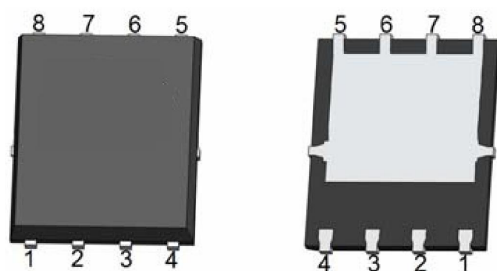
Feature

- Trench Power MV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Suffix "-Q1" for AEC-Q101

Application

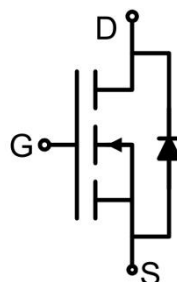
- DC/DC Converter
- Power management functions
- Backlighting

Package

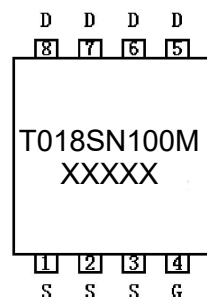


PDFN5*6-8L

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	18	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	$I_D(100^{\circ}\text{C})$	11.4	A
Pulsed Drain Current ¹⁾	I_{DM}	75	A
Power Dissipation ²⁾ ($T_C=25^{\circ}\text{C}$)	P_D	45	W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.8	$^{\circ}\text{C}/\text{W}$
Single pulse avalanche energy ³⁾	E_{AS}	12.5	mJ
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =100V,V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.1	1.8	3.0	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =8A		49	60	mΩ
		V _{GS} =4.5V, I _D =8A		52	70	
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =50V,V _{GS} =0V,f =1MHz		2071		pF
Output Capacitance	C _{oss}			73		
Reverse Transfer Capacitance	C _{rss}			54		
Total Gate Charge	Q _g	V _{DS} =50V,V _{GS} =10V,I _D =10A		51.4		nC
Gate-Source Charge	Q _{gs}			9.1		
Gate-Drain Charge	Q _{gd}			11.5		
Turn-on delay time	t _{d(on)}	V _{DD} =50V,V _{GS} =10V,I _D =2A R _{GEN} =3Ω		10		nS
Turn-on rise time	t _r			19		
Turn-off delay time	t _{d(off)}			42		
Turn-off fall time	t _f			26		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				18	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =18A			1.2	V
Reverse Recovery Time	t _{rr}	I _F = 10A,di/dt = 100A/μs		38		nS
Reverse Recovery Charge	Q _{rr}			35.3		nC

Notes:

- 1) Repetitive rating; pulse width limited by max. junction temperature.
- 2) P_D is based on max. junction temperature, using junction-case thermal resistance.
- 3) $T_J=25^{\circ}\text{C}, V_{DD}=50V, V_{GS}=10V, L=1\text{mH}, I_{AS}=5A$.
- 4) Guaranteed by design, not subject to production testing.

Typical Characteristics

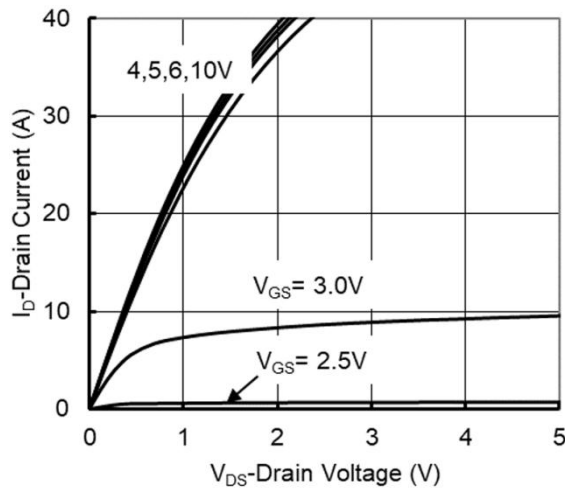


Figure 1. Output Characteristics

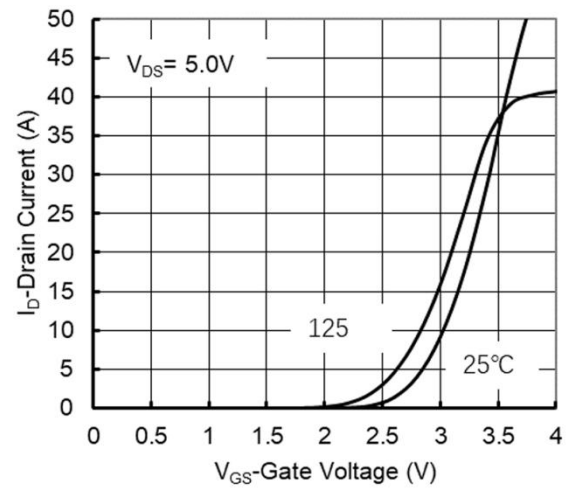


Figure 2. Transfer Characteristics

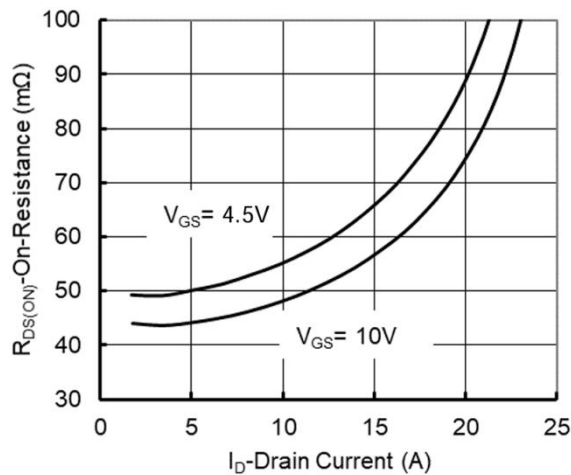


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

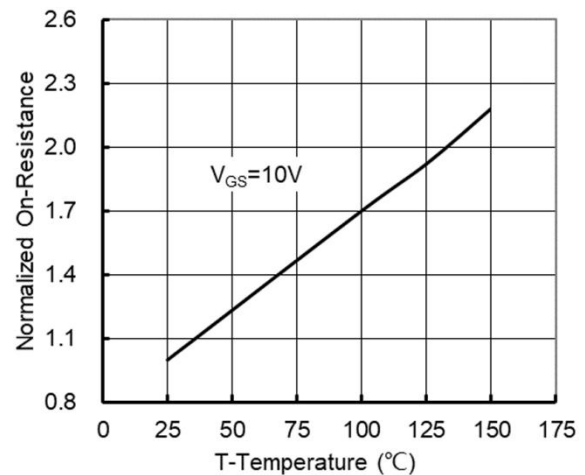


Figure 4. On-Resistance vs. Junction Temperature

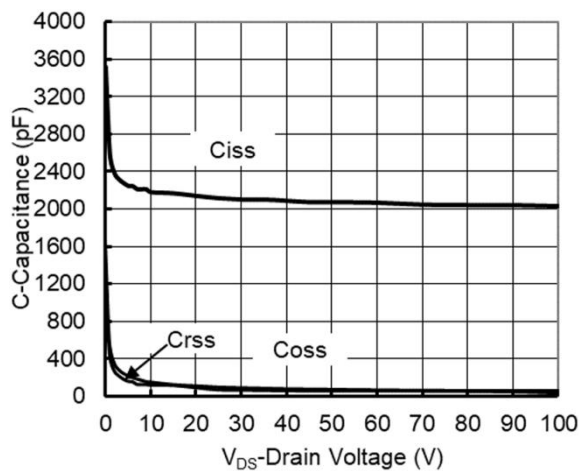


Figure 5. Capacitance Characteristics

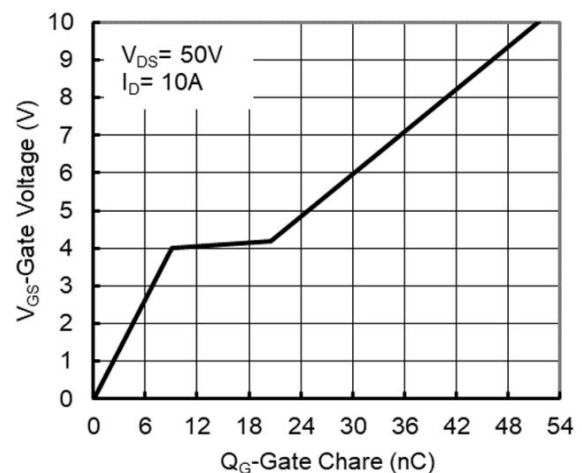


Figure 6. Gate Charge

Typical Characteristics

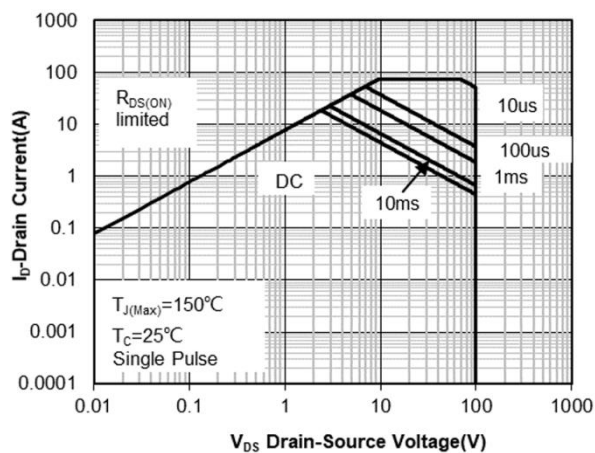


Figure 7. Safe Operation Area

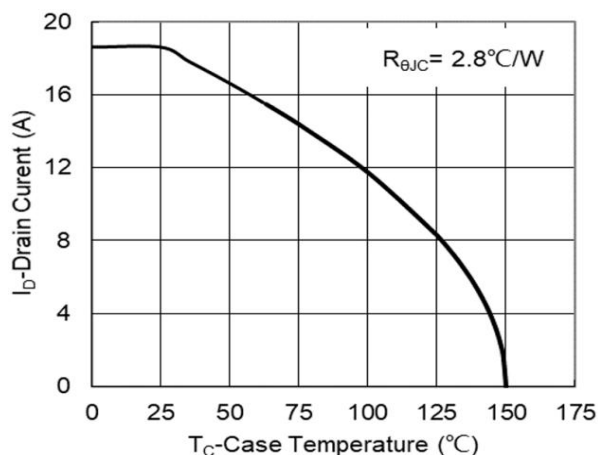


Figure 8. Maximum Continuous Drain Current vs Case Temperature

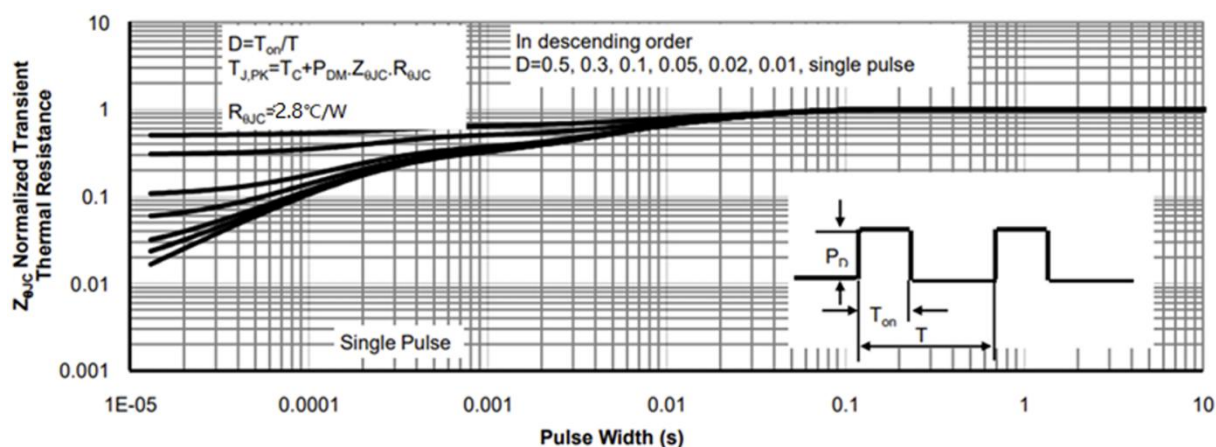
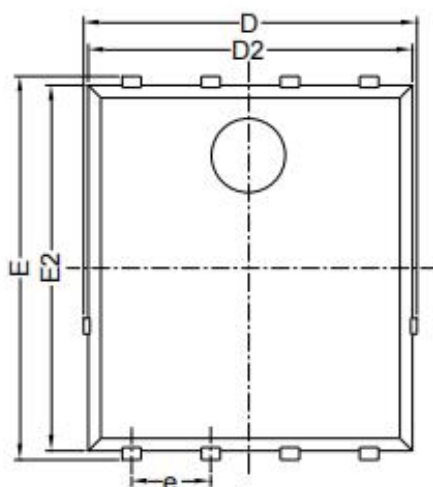
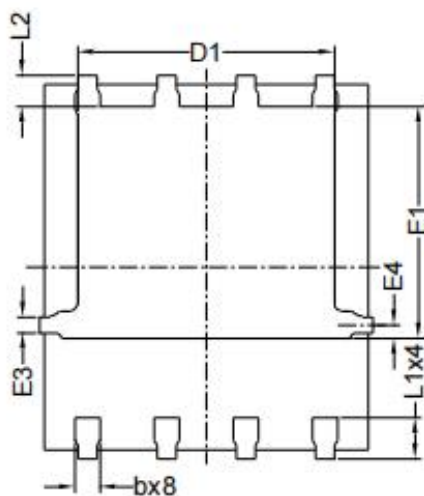


Figure 9. Normalized Maximum Transient Thermal Impedance

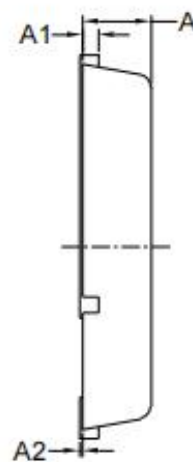
PDFN5*6-8L Package Information



Top View
正面视图



Bottom View
背面视图



Side View
侧面视图

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.000	1.200	0.039	0.047
A1	0.254 BSC.		0.010 BSC.	
A2	-	0.100	-	0.004
b	0.310	0.510	0.012	0.020
D	5.150	5.550	0.203	0.219
D1	3.920	4.320	0.154	0.170
D2	5.000	5.400	0.197	0.213
E	5.950	6.350	0.234	0.250
E1	3.520	3.920	0.139	0.154
E2	5.660	6.060	0.223	0.239
E3	0.254 REF.		0.010 REF.	
E4	0.210 REF.		0.008 REF.	
e	1.270 BSC.		0.050 BSC.	
L1	0.560	0.760	0.022	0.030
L2	0.500 BSC.		0.020 BSC.	