

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	3.5mΩ@10V	80A
	6mΩ@4.5V	

Feature

- Advanced trench technology
- Excellent $R_{DS(on)}$
- Low gate charge

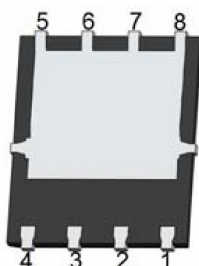
Application

- Battery protection
- Load switch
- Uninterruptible power supply

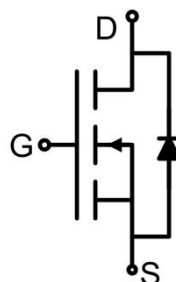
Package



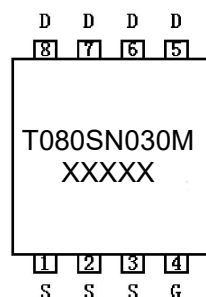
PDFN5*6-8L



Circuit diagram



Marking



Absolute maximum ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹⁾ (V _{GS} =10V)	I _D	80	A
Continuous Drain Current ¹⁾ (V _{GS} =10V, T _c =100°C)	I _D (100°C)	65	A
Pulsed Drain Current ²⁾	I _{DM}	360	A
Power Dissipation ⁴⁾	P _D	43.4	W
Single Pulse Avalanche Energy ³⁾	E _{AS}	144.7	mJ
Thermal Resistance, Junction-to-Case	R _{θJC}	2.3	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_J=25 °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	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, 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	1.5	2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A		2.5	3.5	mΩ
		V _{GS} =4.5V, I _D =20A		4.3	6	
Dynamic characteristics ⁵⁾						
Input Capacitance	C _{iSS}	V _{DS} =15V, V _{GS} =0V, f =1MHz		2680		pF
Output Capacitance	C _{oSS}			393		
Reverse Transfer Capacitance	C _{rSS}			330		
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V, I _D =30A		30		nC
Gate-Source Charge	Q _{gs}			7.2		
Gate-Drain Charge	Q _{gd}			10.4		
Turn-on delay time	t _{d(on)}	V _{DS} =15V, V _{GS} =10V, I _D =30A R _{GEN} =3Ω		23		nS
Turn-on rise time	t _r			28		
Turn-off delay time	t _{d(off)}			74		
Turn-off fall time	t _f			36		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				80	A
Diode Forward voltage	V _{SD}	I _S = 30A, V _{GS} =0V			1.2	V
Reverse Recovery Time	T _{rr}	I _F = 20A, di/dt = 100A/μs		28		nS
Reverse Recovery Charge	Q _{rr}			21		nC

Notes:.

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2) The data tested by pulsed , pulse width ≤300us , duty cycle ≤2%
- 3) The EAS data shows Max. rating . The test condition is V_{DS}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=53.8A .
- 4) The power dissipation is limited by 150°C junction temperature.
- 5) Guaranteed by design, not subject to production testing.

Typical Characteristics

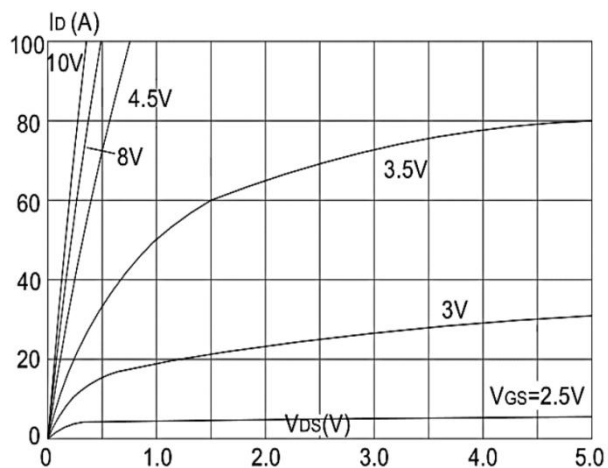


Figure1: Output Characteristics

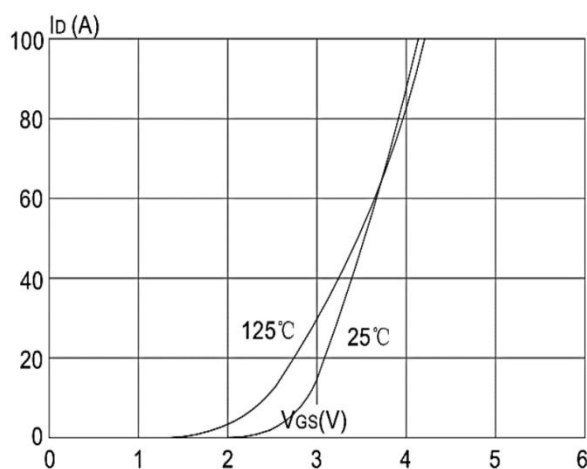


Figure 2: Typical Transfer Characteristics

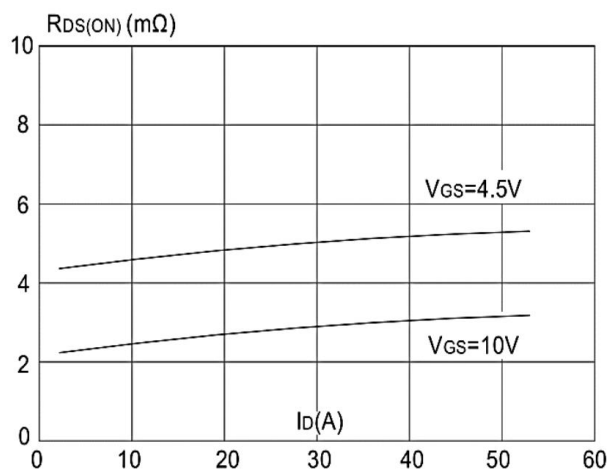


Figure 3: On-resistance vs. Drain Current

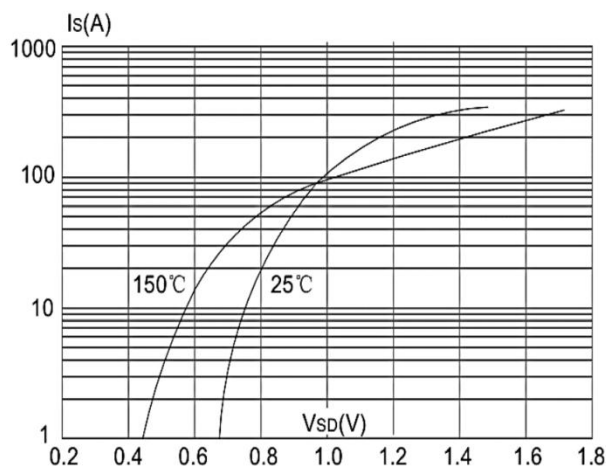


Figure 4: Body Diode Characteristics

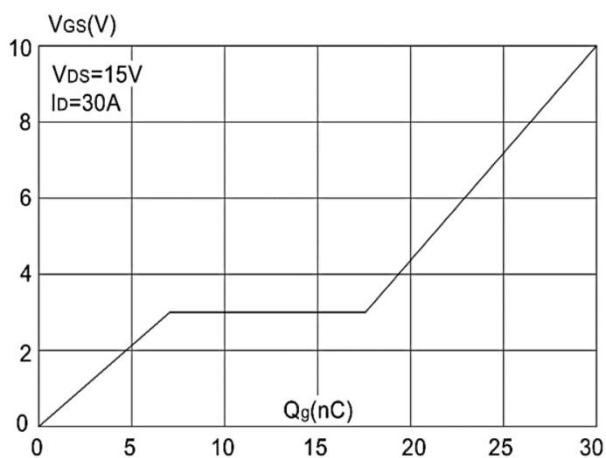


Figure 5: Gate Charge Characteristics

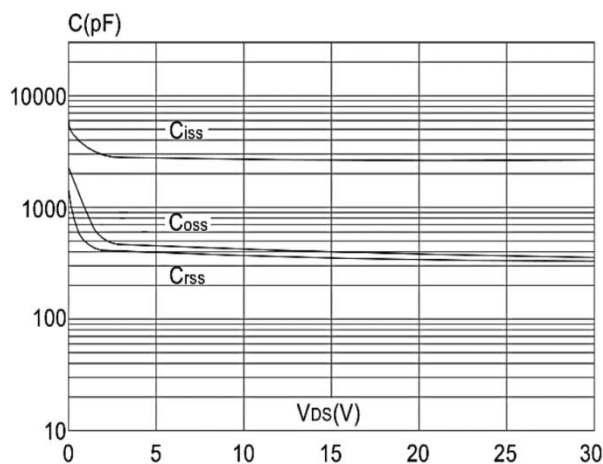


Figure 6: Capacitance Characteristics

Typical Characteristics

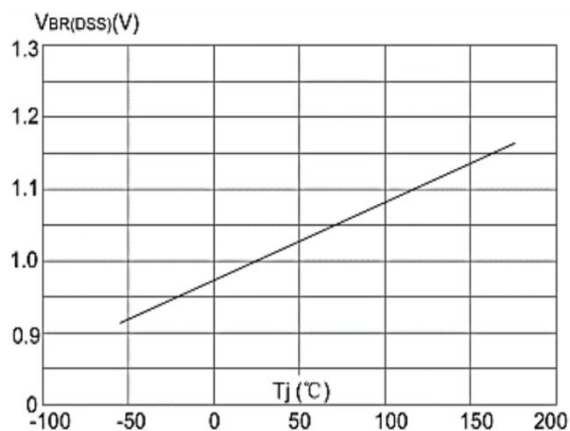


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

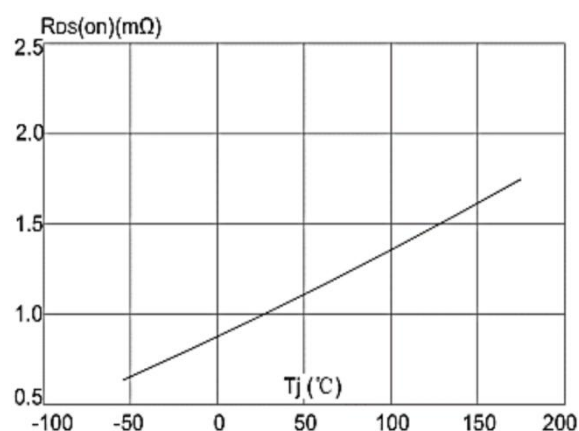


Figure 8: Normalized on Resistance vs. Junction Temperature

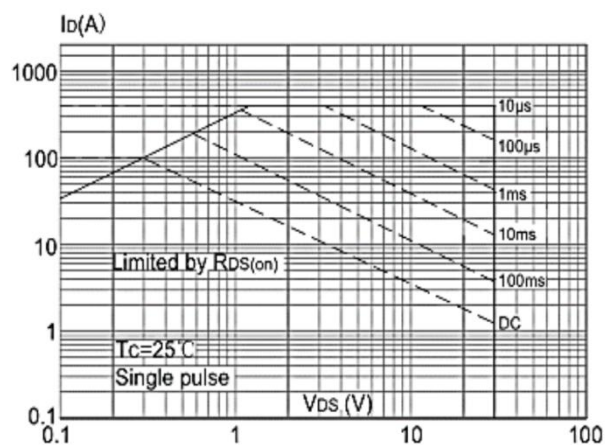


Figure 9: Maximum Safe Operating Area vs. Case Temperature

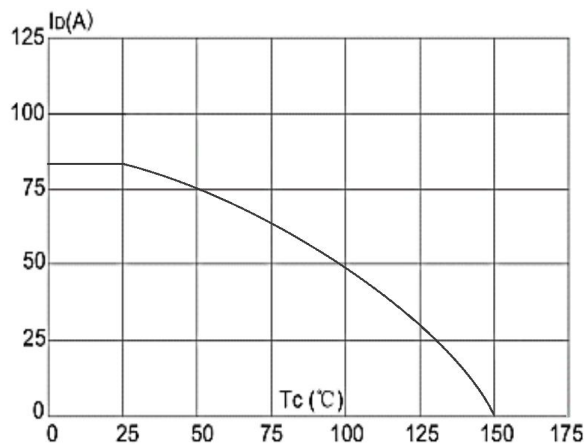


Figure 10: Maximum Continuous Drain Current

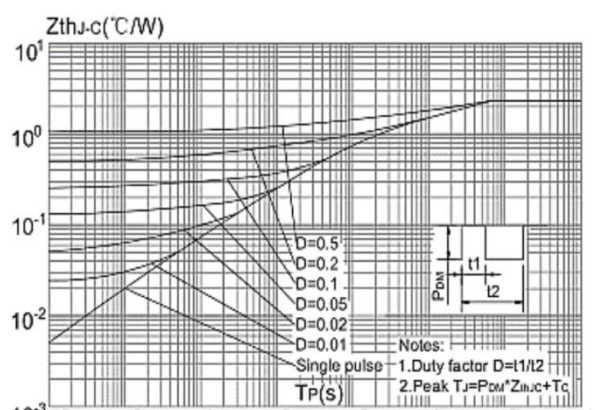
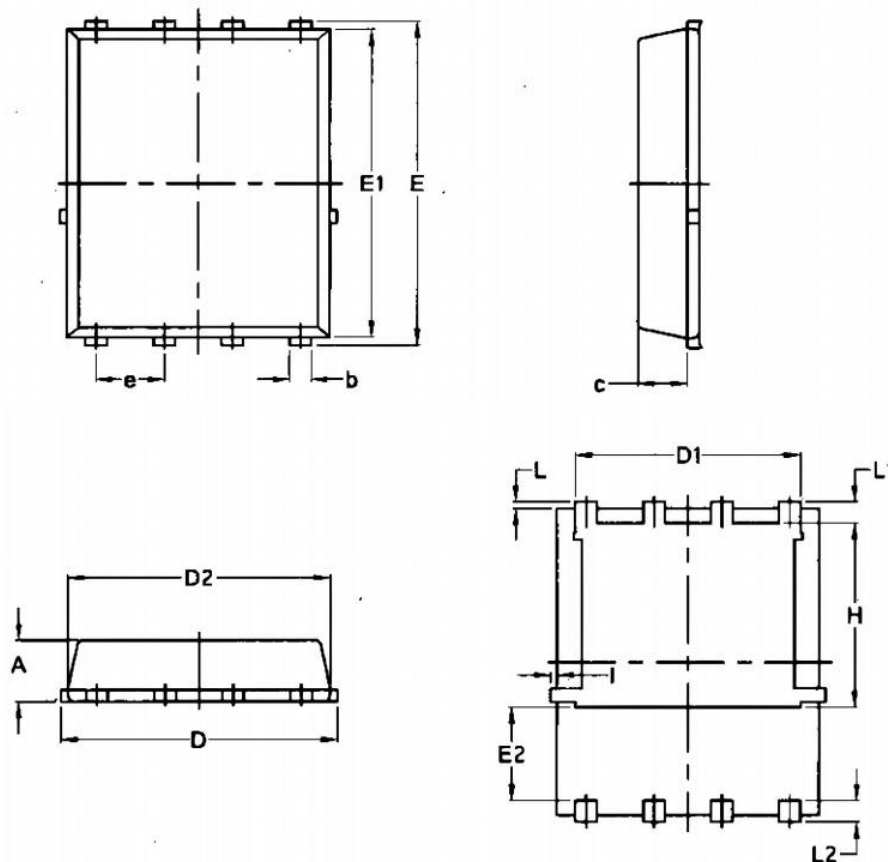


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

PDFN5*6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.030	1.170	0.040	0.046
b	0.340	0.480	0.013	0.019
c	0.824	0.097	0.032	0.004
D	4.800	5.400	0.189	0.213
D1	4.110	4.310	0.162	0.170
D2	4.800	5.000	0.189	0.197
E	5.950	6.150	0.234	0.242
E1	5.650	5.850	0.222	0.230
E2	1.600	-	0.063	-
e	1.270 BSC		0.050 BSC	
L	0.050	0.250	0.002	0.010
L1	0.380	0.500	0.015	0.020
L2	0.380	0.500	0.015	0.020
H	3.300	3.500	0.130	0.138
I	0.000	0.180	0.000	0.007