

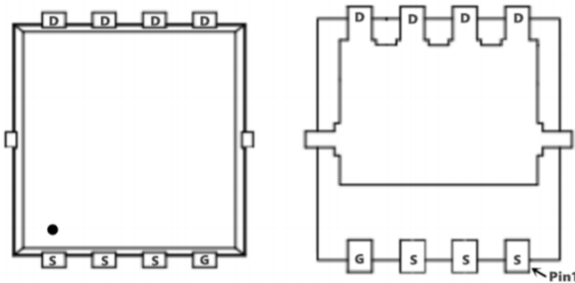
### Product Summary

- ◆  $V_{DS} = 30V$  |  $I_D = 80 A$
- ◆  $R_{DS(ON)} < 5.5 m\Omega$  @  $V_{GS}=10V$
- ◆  $R_{DS(ON)} < 6.5 m\Omega$  @  $V_{GS}=4.5V$

### Application

- ◆ Load/Power switch
- ◆ Interfacing, logic switching
- ◆ Battery management for ultra portable electronics

### Package and Pin Configuration



### Circuit diagram



PDFN5\*6-8L

Marking:80N03

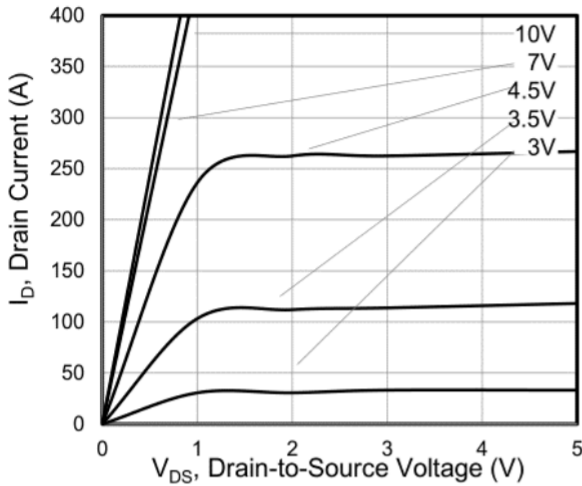
**Absolute Maximum Ratings** ( $T_A=25^\circ C$  unless otherwise specified)

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	30	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D@T_C=25^\circ C$	Continuous Drain Current, $V_{GS}$ @ $10V^{1,6}$	80	A
$I_D@T_C=100^\circ C$	Continuous Drain Current, $V_{GS}$ @ $10V^{1,6}$	68	A
$I_{DM}$	Pulsed Drain Current <sup>2</sup>	216	A
EAS	Single Pulse Avalanche Energy <sup>3</sup>	144.7	mJ
$I_{AS}$	Avalanche Current	53.8	A
$P_D@T_C=25^\circ C$	Total Power Dissipation <sup>4</sup>	69	W
$P_D@T_A=25^\circ C$	Total Power Dissipation <sup>4</sup>	5	W
$T_{STG}$	Storage Temperature Range	-55 to 175	$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 175	$^\circ C$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient <sup>1</sup>	62	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient <sup>1</sup> ( $t \leq 10s$ )	25	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case <sup>1</sup>	1.8	$^\circ C/W$

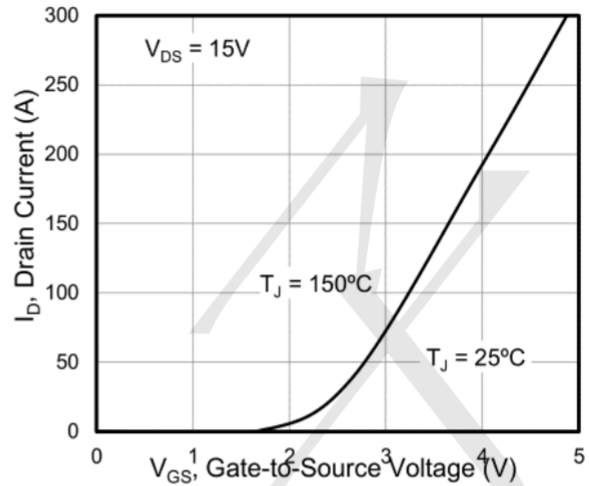
**Electrical Characteristics** (T =25°C unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	30	---	---	V
∂BV <sub>DSS</sub> /∂T <sub>J</sub>	BVDSS Temperature Coefficient	Reference to 25°C, I <sub>D</sub> =1mA	---	0.0213	---	V/°C
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =30A	---	4.3	5.5	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =15A	---	4.8	6.5	
V <sub>GS(th)</sub>	Gate Threshold Voltage		1.2	1.7	2.5	V
∂V <sub>GS(th)</sub>	V <sub>GS(th)</sub> Temperature Coefficient	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	---	-5.73	---	mV/°C
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	---	---	1	uA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C	---	---	5	
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =5V, I <sub>D</sub> =30A	---	26.5	---	S
R <sub>g</sub>	Gate Resistance	V <sub>DS</sub> =0V, V <sub>GS</sub> =0V, f=1MHz	---	1.4	---	
Q <sub>g</sub>	Total Gate Charge (4.5V)		---	98	---	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =15A	---	11	---	
Q <sub>gd</sub>	Gate-Drain Charge		---	21	---	
T <sub>d(on)</sub>	Turn-On Delay Time		---	17	---	ns
T <sub>r</sub>	Rise Time	V <sub>DD</sub> =15V, V <sub>GS</sub> =10V, R <sub>G</sub> =3.3	---	41	---	
T <sub>d(off)</sub>	Turn-Off Delay Time	I <sub>D</sub> =15A	---	55	---	
T <sub>f</sub>	Fall Time		---	66	---	
C <sub>iss</sub>	Input Capacitance		---	5471	---	pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz	---	1628	---	
C <sub>riss</sub>	Reverse Transfer Capacitance		---	1026	---	
I <sub>S</sub>	Continuous Source Current <sup>1,5</sup>		---	---	130	A
I <sub>SM</sub>	Pulsed Source Current <sup>2,5</sup>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	520	A
V <sub>SD</sub>	Diode Forward Voltage <sup>2</sup>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A, T <sub>J</sub> =25°C	---	---	1.2	V

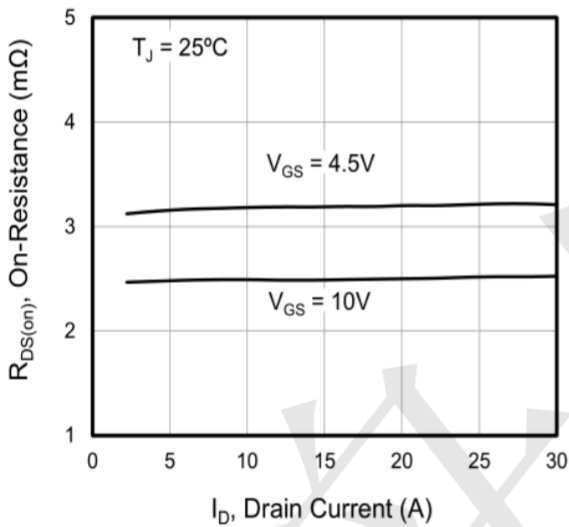
**Typical Electrical and Thermal Characteristic Curves**



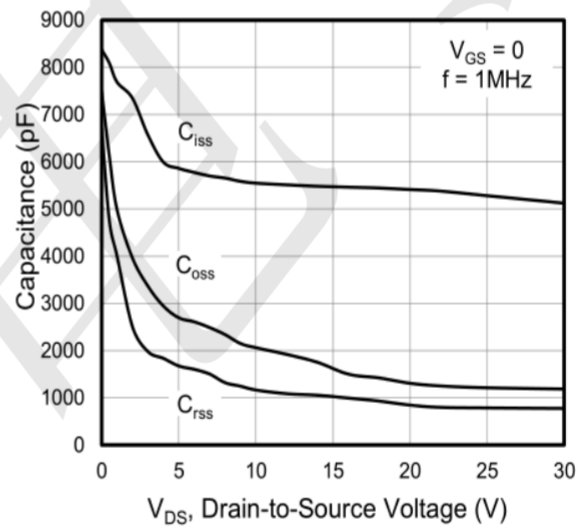
**Figure 1. Output Characteristics**



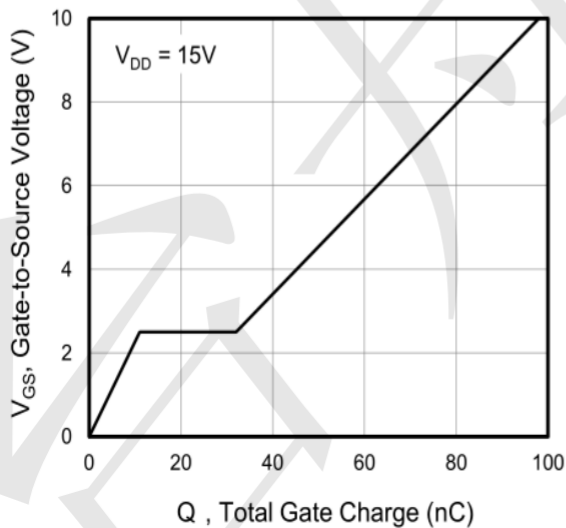
**Figure 2. Transfer Characteristics**



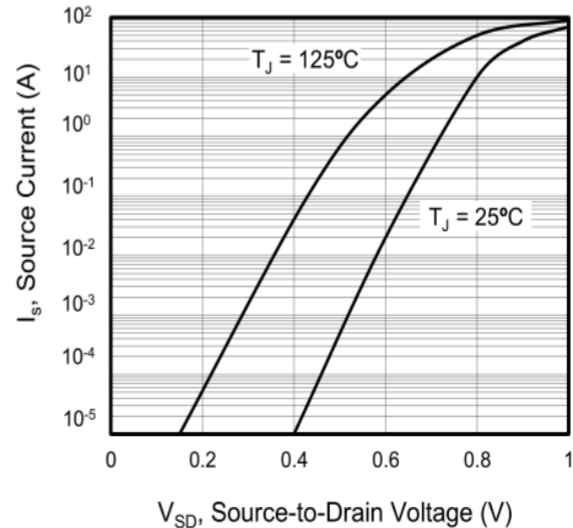
**Figure 3. On-Resistance vs. Drain Current**



**Figure 4. Capacitance**

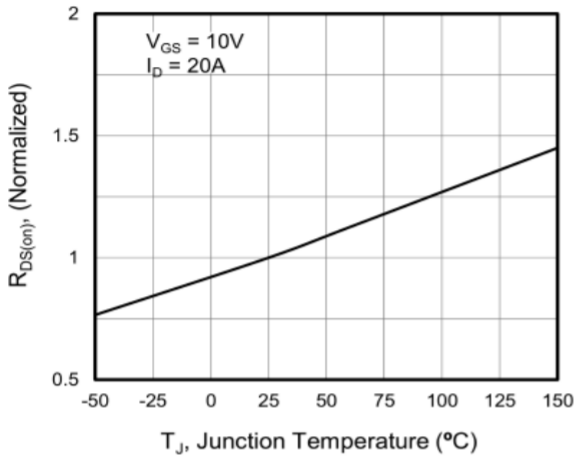


**Figure 5. Gate Charge**

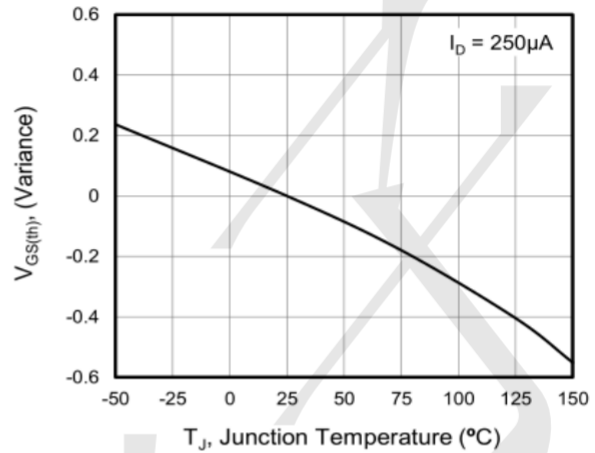


**Figure 6. Body Diode Forward Voltage**

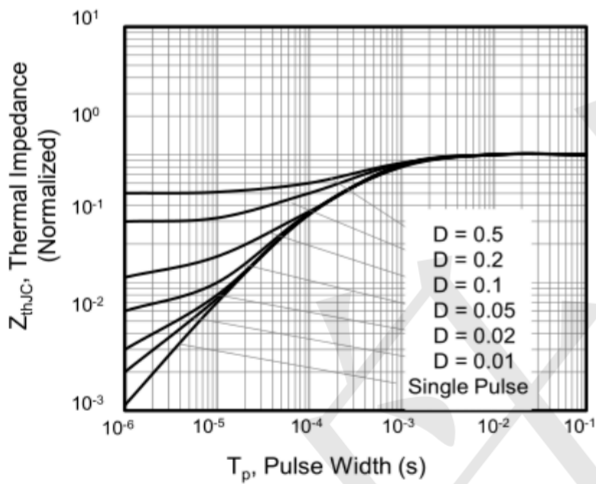
**Typical Electrical and Thermal Characteristic Curves**



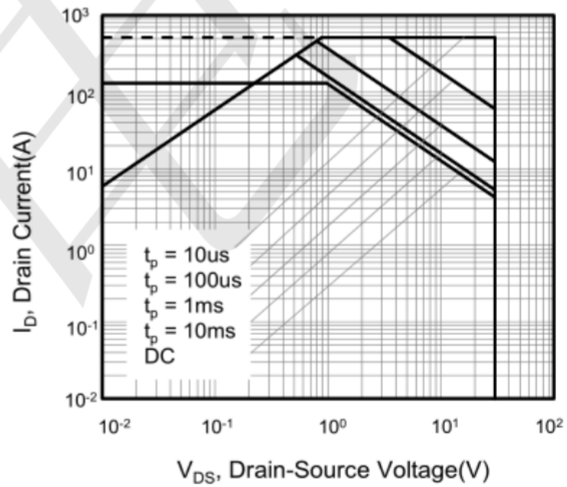
**Figure 7. On-Resistance vs. Junction Temperature**



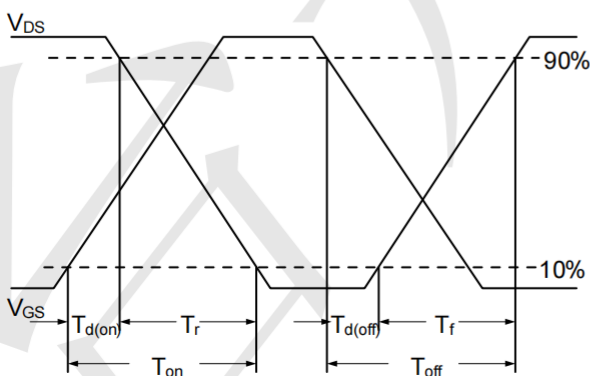
**Figure 8. Threshold Voltage vs. Junction Temperature**



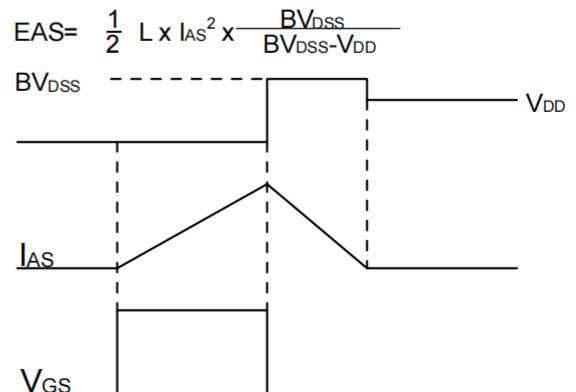
**Figure 9. Transient Thermal Impedance**



**Figure 10. Safe operation area**



**Fig.11 Switching Time Waveform**



**Fig.12 Unclamped Inductive Switching Waveform**



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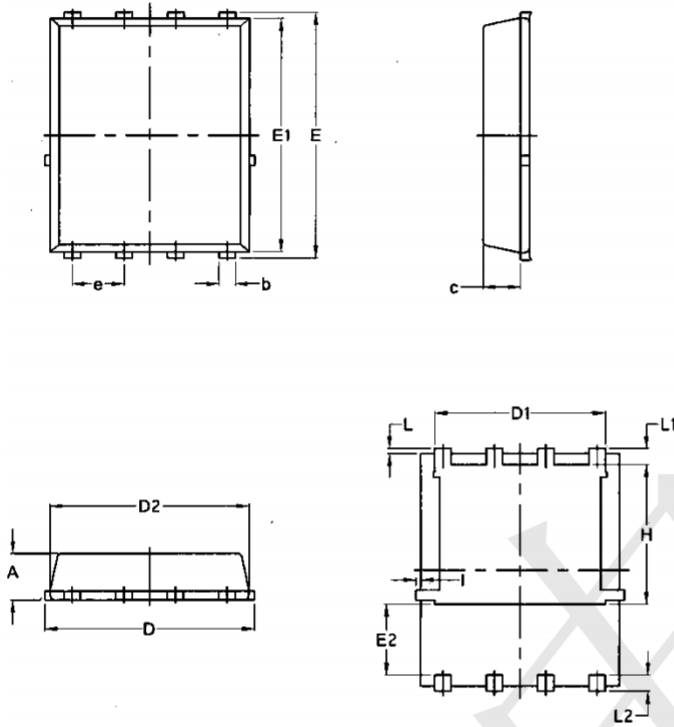
台丹电子

TPM3080ND56-L

30V N-Channel MOSFET

www.sot23.com.tw

Package Outline Dimensions DFN5\*6-8L



Symbol	Common			
	mm		Inch	
	Min	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
l	/	0.18	/	0.0070