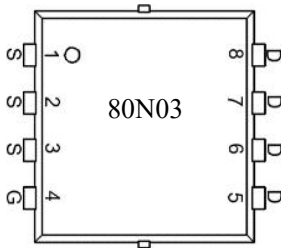
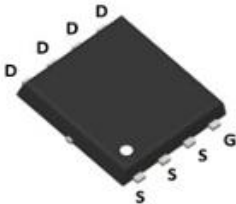
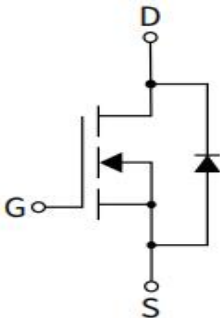


Features ➤ 100% EAS Guaranteed ➤ Green Device Available ➤ Super Low Gate Charge ➤ Excellent CdV/dt effect decline ➤ Advanced high cell density Trench technology	Bvdss	Rdson	ID
	30V	3.8mΩ	80A
	Application ➤ DC-DC converter ➤ Portable Equipment ➤ Power management		

RoHS

Package		
 Marking and pin assignment	 PDFN5x6-8L top view	 Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
80N03	80N03F	PDFN5x6-8L	5000

Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	30	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C =25°C	I _D	80	A
	T _C =100°C		46	A
Pulsed Drain Current ¹		I _{DM}	200	A
Single Pulsed Avalanche Energy ⁵		EAS	150	mJ
Power Dissipation ⁴		P _D	65	W
Junction Temperature		T _J	-55 ~ 150	°C
Storage Temperature		T _{STG}	-55 ~ 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Case ²	R _{θJC}	--	1.92	°C/W



Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL80N03F	PDFN5x6-8L	4	5,6,7,8	1,2,3	Tape Reel

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.6	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$	-	3.8	5.0	m Ω
		$V_{GS}=4.5V, I_D=20A$	-	6.9	11	
Forward Transconductance	g_{fs}	$V_{DS}=5V, I_D=20A$	20	-	-	S
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V,$ $F=1MHz$	-	1400	-	PF
Output Capacitance	C_{oss}		-	205	-	
Reverse Transfer Capacitance	C_{rss}		-	177	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=15V, I_D=20A$ $V_{GS}=10V, R_G=6\Omega$	-	9	-	nS
Turn-on Rise Time	t_r		-	8	-	
Turn-Off Delay Time	$t_{d(off)}$		-	28	-	
Turn-Off Fall Time	t_f		-	5	-	
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=20A,$ $V_{GS}=10V$	-	32.3	-	nC
Gate-Source Charge	Q_{gs}		-	4.9	-	
Gate-Drain Charge	Q_{gd}		-	6.9	-	
Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=20A$	-	0.85	1.2	V
Diode Forward Current ²	I_S		-	-	65	A
Reverse Recovery Time	t_{rr}	$T_J=25^{\circ}\text{C}, I_F=20A$	-	-	27	nS
Reverse Recovery Charge	Q_{rr}	$di/dt=100A/\mu s^3$	-	-	20	nC

Notes:

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2.Surface Mounted on FR4 Board, $t \leq 10$ sec.
- 3.Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
- 4.Guaranteed by design, not subject to production
- 5.EAS condition: $T_J=25^{\circ}\text{C}, V_{DD}=15V, V_G=10V, L=0.5mH, R_g=25\Omega, R_g=25\Omega$

Typical Electrical and Thermal Characteristics

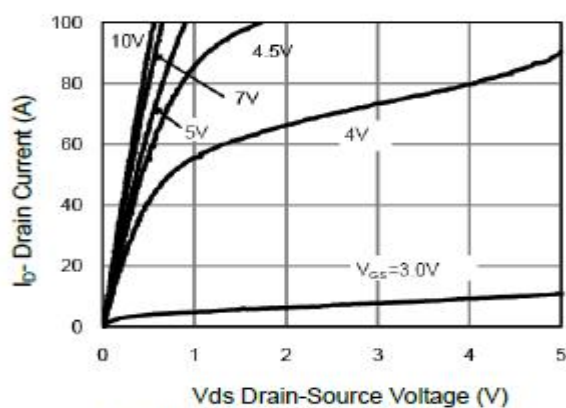


Figure 1 Output Characteristics

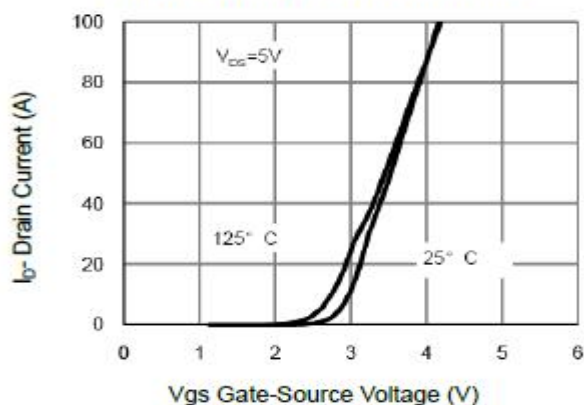


Figure 2 Transfer Characteristics

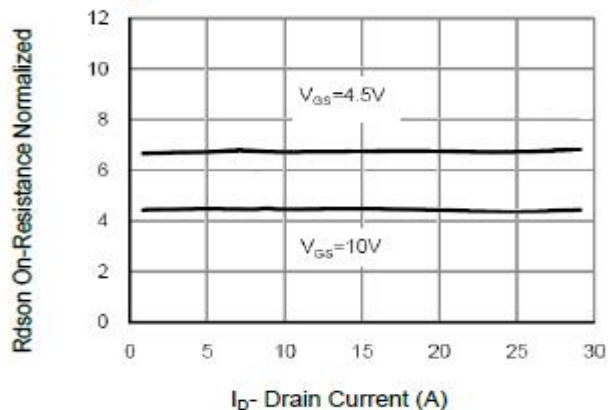


Figure 3 Rdson- Drain Current

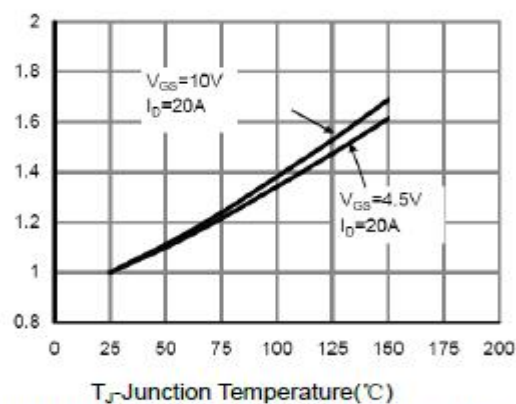


Figure 4 Rdson-Junction Temperature

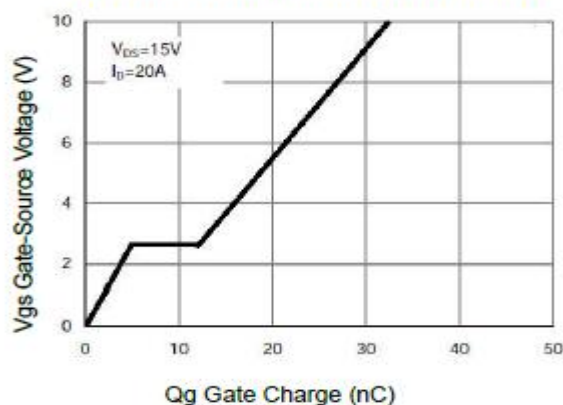


Figure 5 Gate Charge

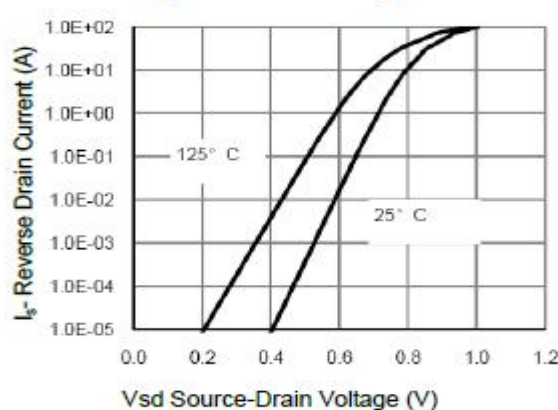


Figure 6 Source- Drain Diode Forward

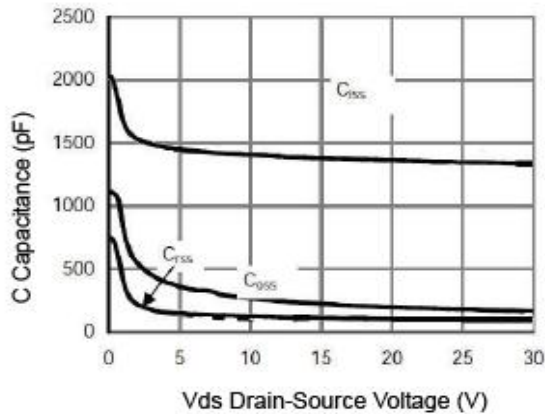


Figure 7 Capacitance vs Vds

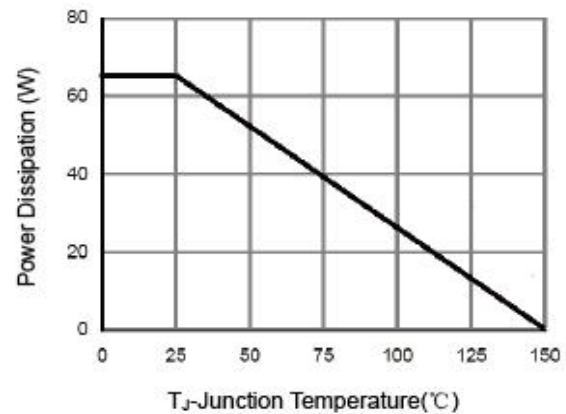


Figure 9 Power De-rating

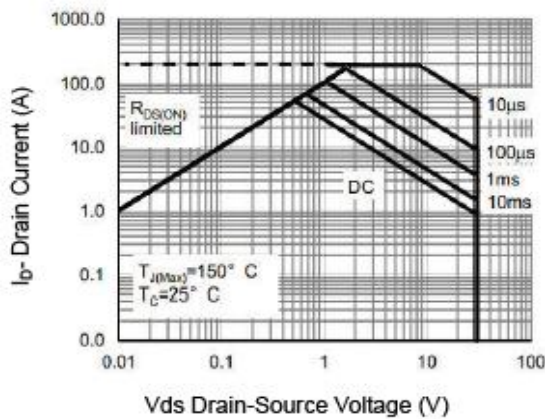


Figure 8 Safe Operation Area

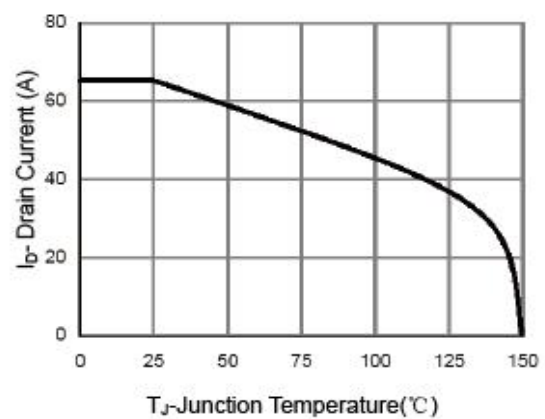


Figure 10 ID Current- Junction Temperature

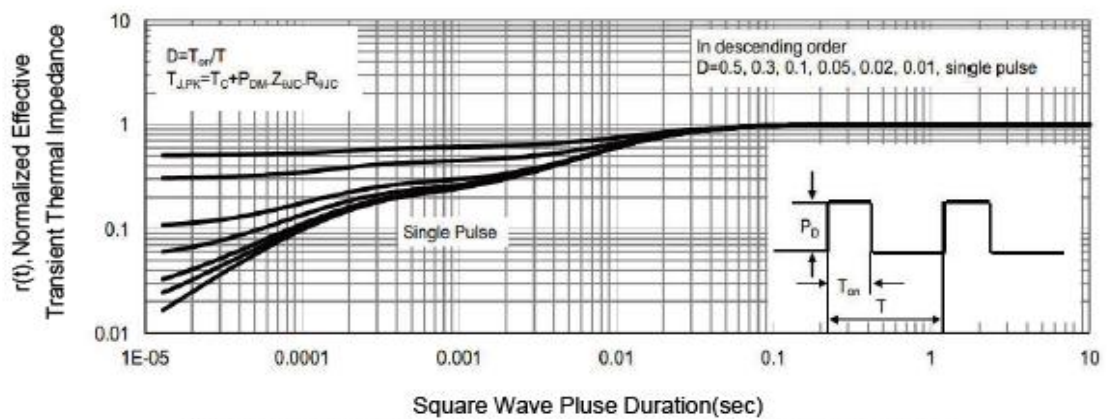
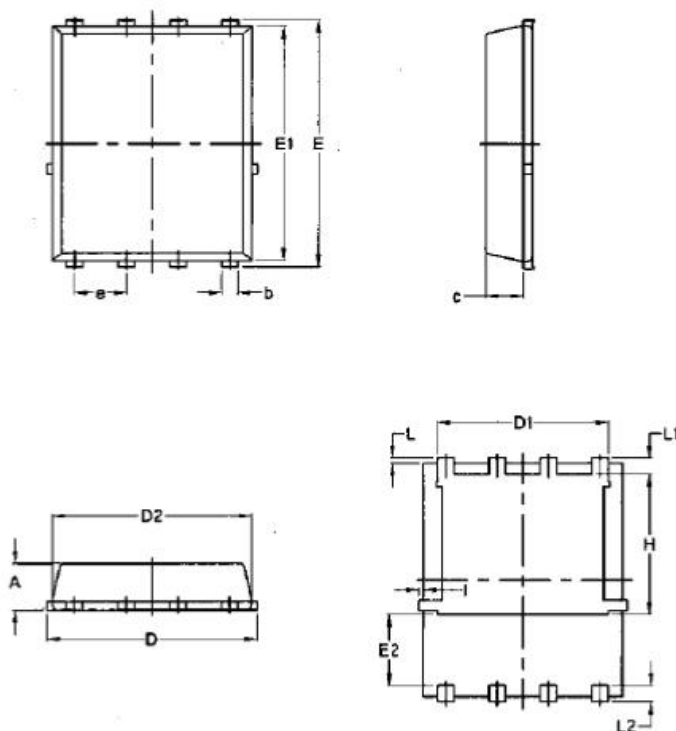


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Dimensions PDFN5x6-8L


Symbol	Common			
	mm		Inch	
	Mim	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



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