

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	9.7mΩ@10V	80A
	11mΩ@4.5V	

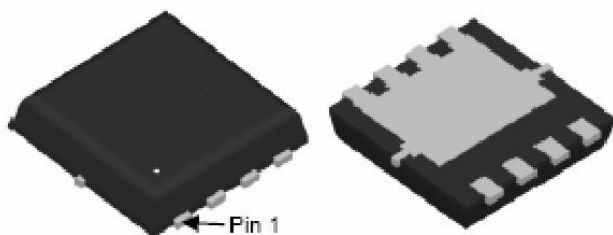
Feature

- High density cell design for ultra low Rdson
- Fast switching
- Excellent package for heat dissipation
- Suffix "-Q1" for AEC-Q101

Application

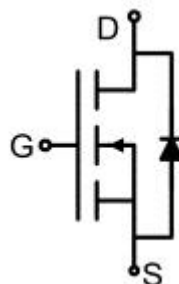
- PWM Application
- Load Switch
- Power Management

Package

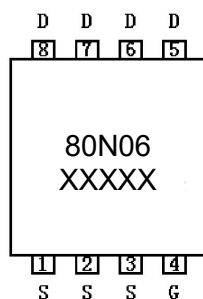


DFN3.3X3.3-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	80	A
Continuous Drain Current(T _C =100 °C)	I _D (100 °C)	52	A
Pulsed Drain Current	I _{DM}	320	A
Power Dissipation	P _D	108	W
Avalanche energy,single Pulse(L=0.5mH) ³⁾	E _{AS}	130	mJ
Thermal Resistance,Junction-to-Case	R _{θJC}	1.4	°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	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V, 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	2.0		4.0	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} =10V, I _D =30A		7.5	9.7	mΩ
		V _{GS} =4.5V, I _D =30A		8.5	11	
Dynamic characteristics²⁾						
Input Capacitance	C _{iSS}	V _{DS} =30V, V _{GS} =0V, f =1MHz		4100		pF
Output Capacitance	C _{oss}			290		
Reverse Transfer Capacitance	C _{rSS}			255		
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =30A		91		nC
Gate-Source Charge	Q _{gs}			9		
Gate-Drain Charge	Q _{gd}			17		
Turn-on delay time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V, I _D =30A, R _{GEN} =1.8Ω		9		nS
Turn-on rise time	t _r			7		
Turn-off delay time	t _{d(off)}			38		
Turn-off fall time	t _f			16		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				80	A
Diode Forward voltage	V _{DS}	V _{GS} =0V, I _S =30A			1.2	V

Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.
- 3) EAS condition: T_J =25°C, V_{DD} =30V, V_G =10V, R_G =25Ω, L=0.5mH.

Typical Characteristics

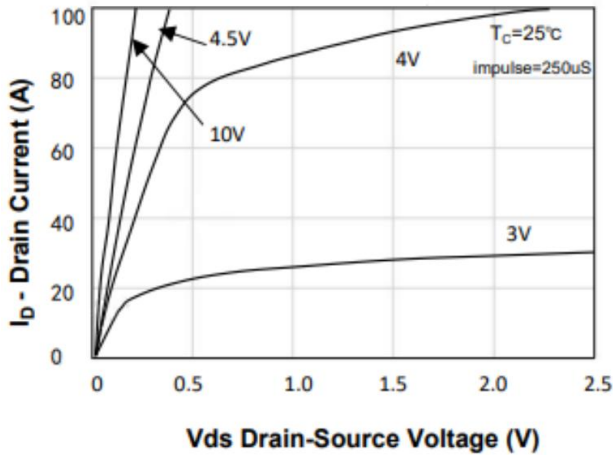


Figure 1. On-Region Characteristics

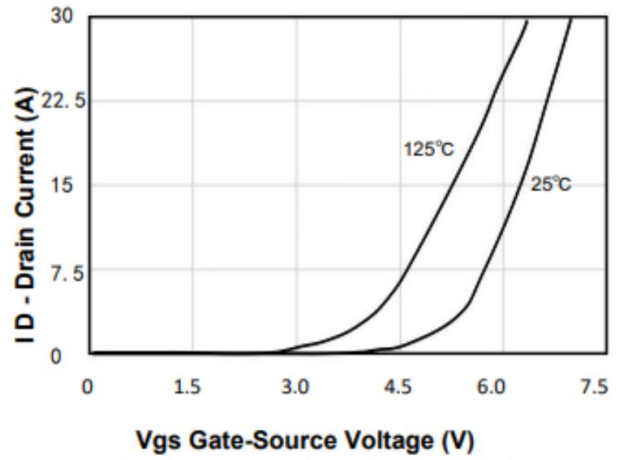


Figure 2. Transfer Characteristics

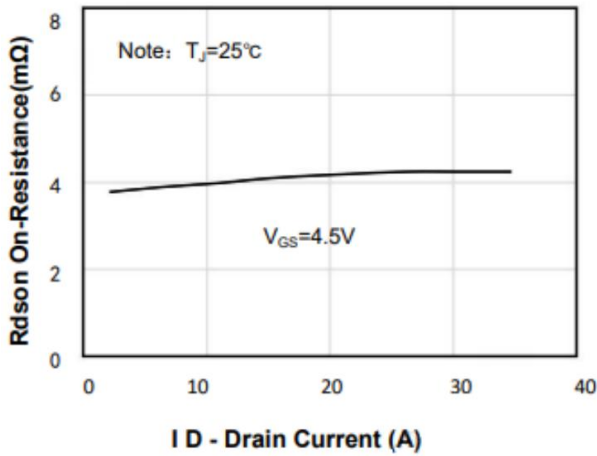


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

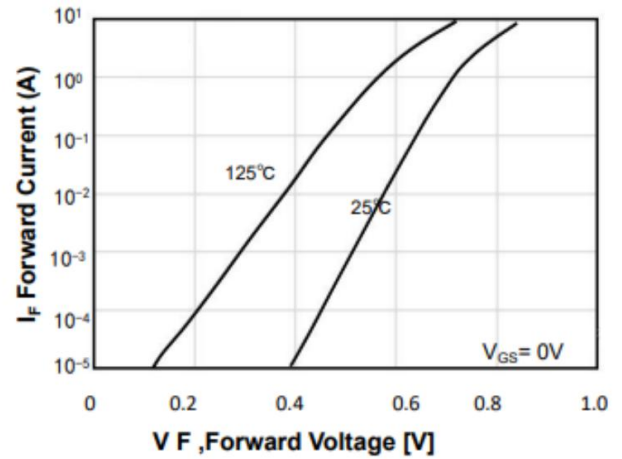


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

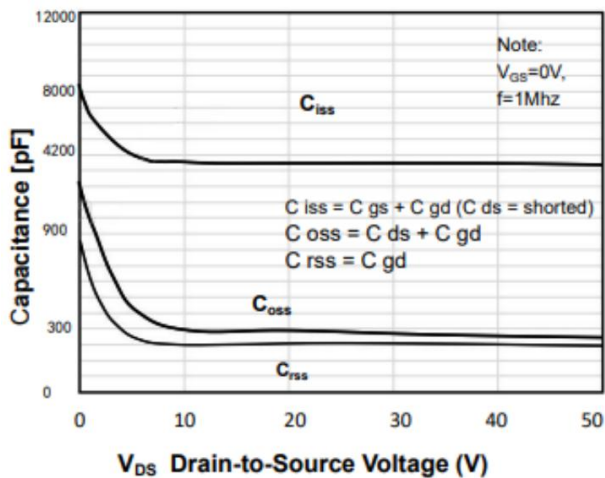


Figure 5. Capacitance Characteristics

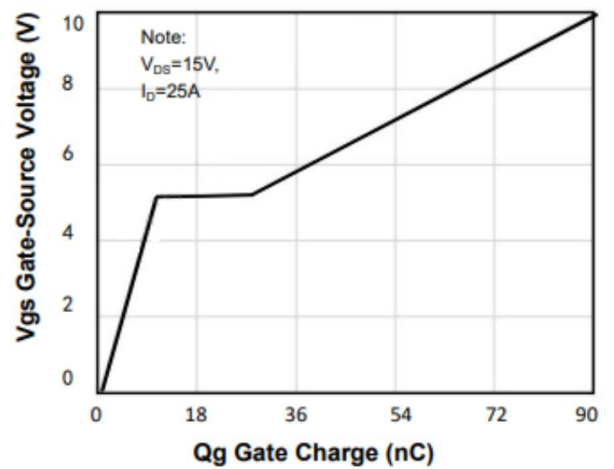


Figure 6. Gate Charge Characteristics

Typical Characteristics

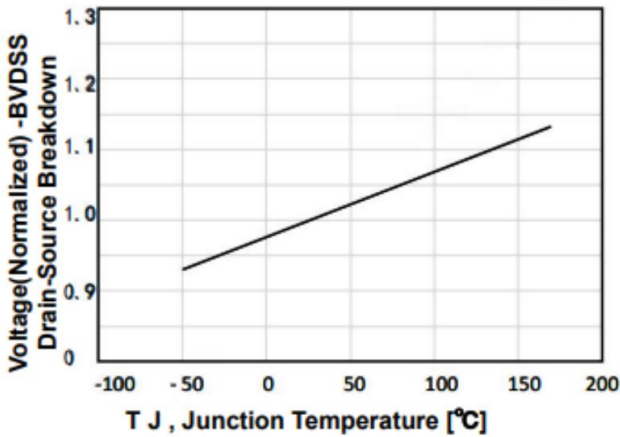


Figure 7. Breakdown Voltage Variation vs Temperature

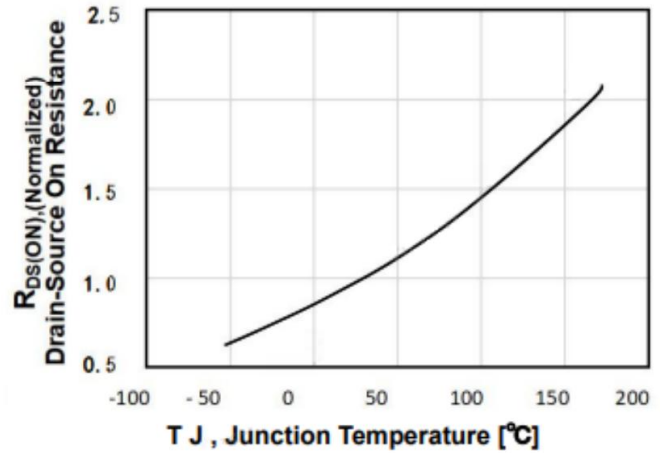


Figure 8. On-Resistance Variation vs Temperature

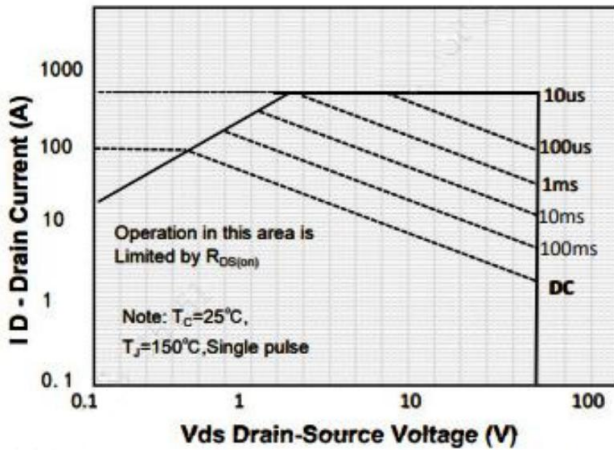


Figure 9. Maximum Safe Operating Area

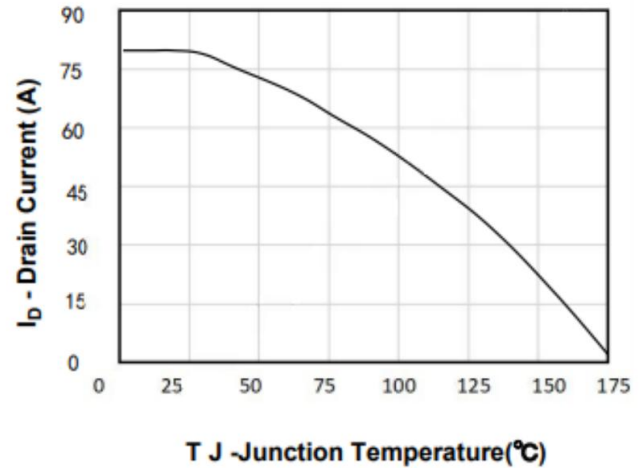


Figure 10. Maximum PContinuous Drain Current vs Case Temperature

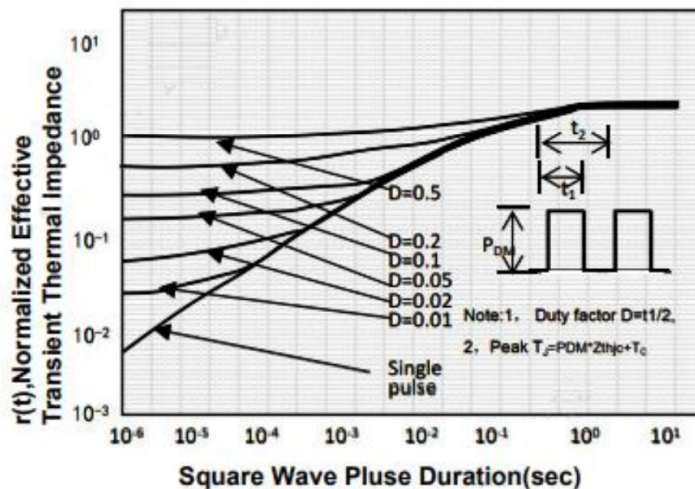
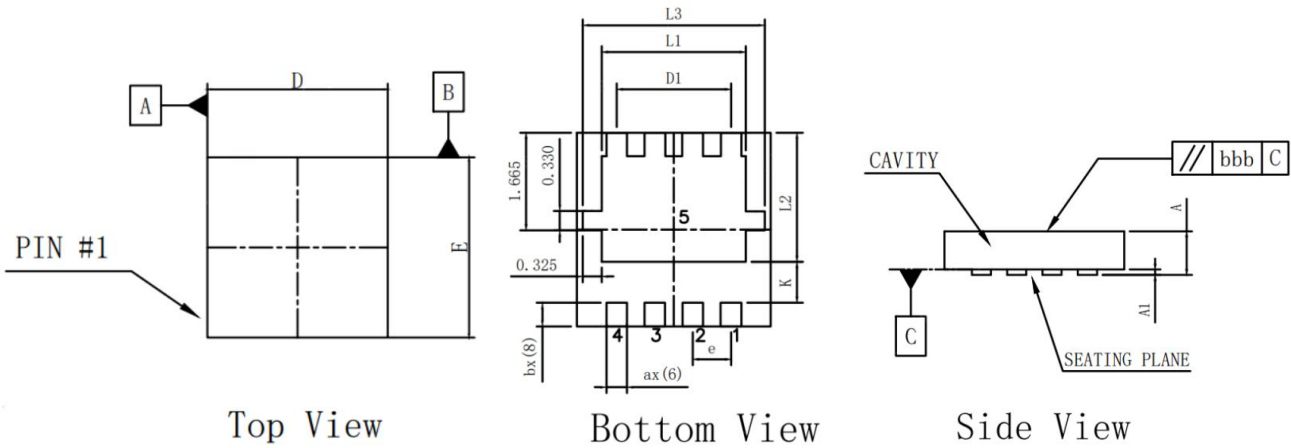


Figure 11. Transient Thermal Response Curve

DFN3.3X3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.750	0.025	0.030
A1	0.100BSC		0.004BSC	
D	3.200	3.400	0.125	0.134
D1	1.950BSC		0.077BSC	
E	3.200	3.400	0.125	0.134
e	0.650 BSC		0.026 BSC	
L1	2.400	2.500	0.094	0.099
L2	2.150	2.250	0.084	0.089
L3	3.050	3.150	0.120	0.124
K	0.600	0.800	0.023	0.032
ax(6)	0.300	0.400	0.011	0.015
bx(8)	0.350	0.450	0.013	0.018
bbb	0.100 BSC		0.004BSC	