

Description

The 80N06 is the high cell density trench N-ch MOSFETs, which provide excellent RDS(on) and gate charge for most of the synchronous buck converter applications.

The 80N06 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

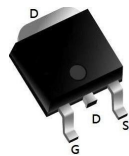
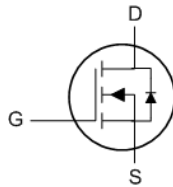
Super Low Gate Charge

100% EAS Guaranteed

Green Device Available

Excellent CdV/dt effect decline

Advanced high cell density Trench technology

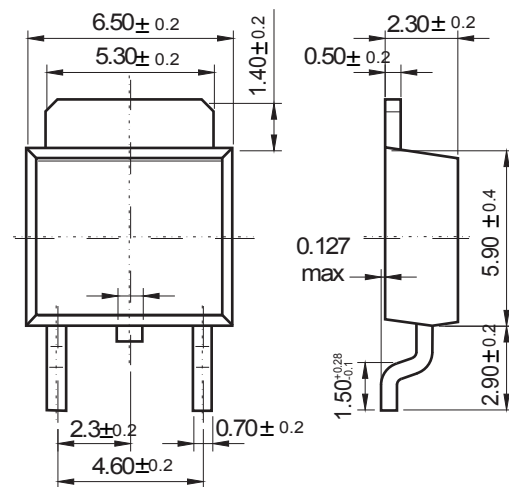


Product Summary

BVDSS	RDS(on)	ID
60 V	6 mΩ	80 A

TO-252

Unit: mm



Dimensions in inches and (millimeters)

Absolute Maximum Ratings (T_A = 25°C, unless otherwise noted)

Symbol	Parameter		Max.	Units
V _{DSS}	Drain-Source Voltage		60	V
V _{GSS}	Gate-Source Voltage		±25	V
I _D	Continuous Drain Current	T _C = 25°C	80	A
		T _C = 100°C	52	A
I _{DM}	Pulsed Drain Current ^{note1}		320	A
EAS	Single Pulsed Avalanche Energy ^{note2}		169	mJ
P _D	Power Dissipation	T _C = 25°C	108	W
R _{θJC}	Thermal Resistance, Junction to Case		1.4	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to +175	°C

80N06

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2	3	4	V
R _{DS(on)}	Static Drain-Source on-Resistance note3	V _{GS} =10V, I _D =30A	-	6	8	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1.0MHz	-	4136	-	pF
C _{oss}	Output Capacitance		-	286	-	pF
C _{rss}	Reverse Transfer Capacitance		-	257	-	pF
Q _g	Total Gate Charge	V _{DS} =30V, I _D =30A, V _{GS} =10V	-	90	-	nC
Q _{gs}	Gate-Source Charge		-	9	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	18	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =30V, I _D =30A, R _G =1.8Ω, V _{GS} =10V	-	9	-	ns
t _r	Turn-on Rise Time		-	7	-	ns
t _{d(off)}	Turn-off Delay Time		-	40	-	ns
t _f	Turn-off Fall Time		-	15	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	80	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	320	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =30A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time		-	33	-	ns
Qrr	Body Diode Reverse Recovery Charge	I _F =30A, dI/dt=100A/μs	-	46	-	nC

- Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
 2. EAS condition : $T_J=25^\circ\text{C}$, $V_{DD}=30V$, $V_G=10V$, $L=0.5mH$, $R_G=25\Omega$, $I_{AS}=26A$
 3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

RATING AND CHARACTERISTIC CURVES (80N06)

Figure 1: Output Characteristics

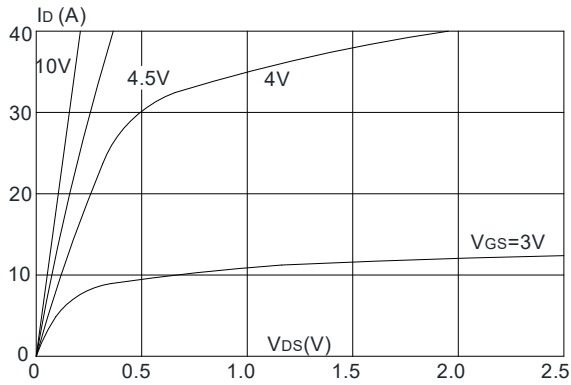


Figure 2: Typical Transfer Characteristics

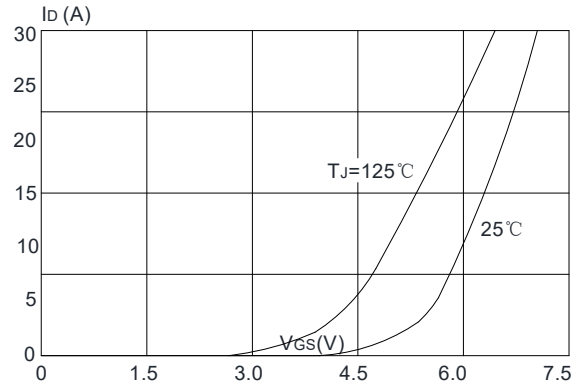


Figure 3: On-resistance vs. Drain Current

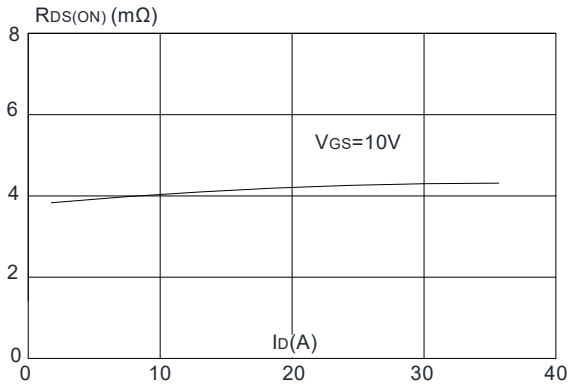


Figure 4: Body Diode Characteristics

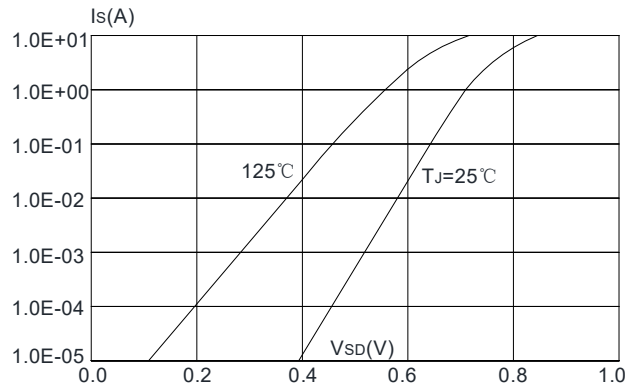


Figure 5: Gate Charge Characteristics

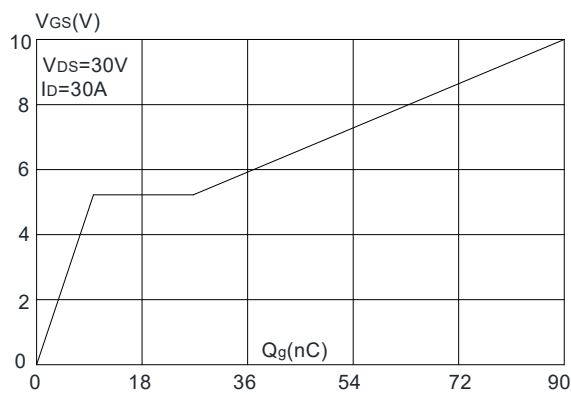
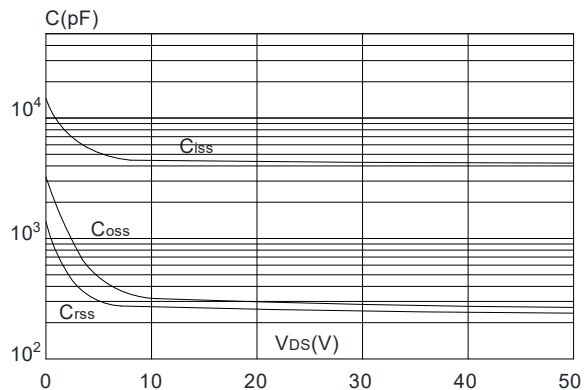


Figure 6: Capacitance Characteristics



RATING AND CHARACTERISTIC CURVES (80N06)

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

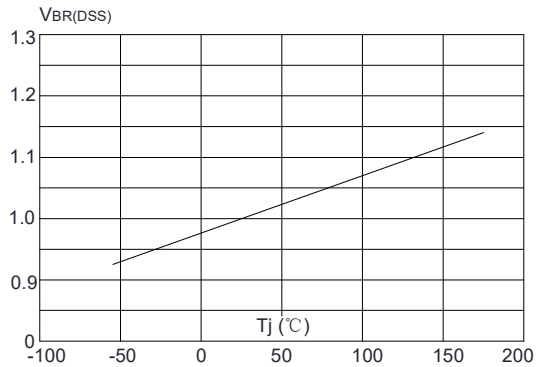


Figure 8: Normalized on Resistance vs. Junction Temperature

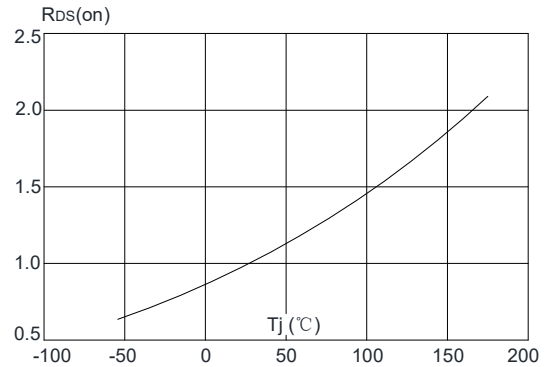


Figure 9: Maximum Safe Operating Area

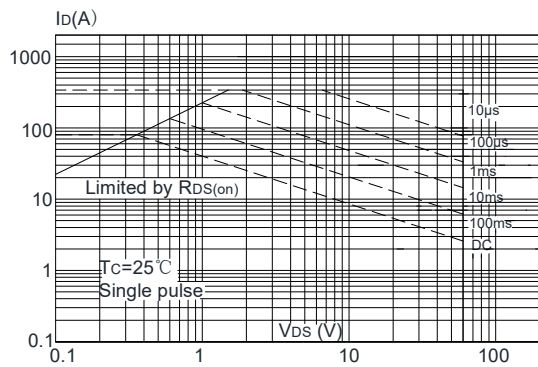


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

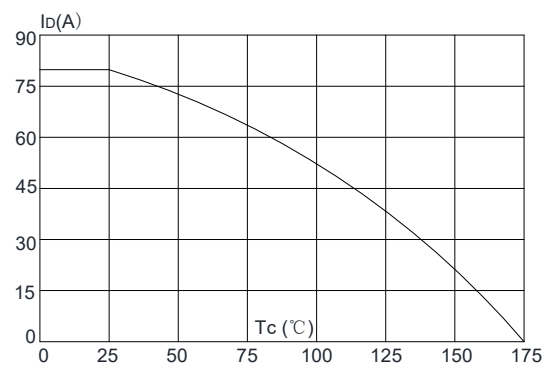


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

