

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	12mΩ@10V	35A
	15mΩ@4.5V	

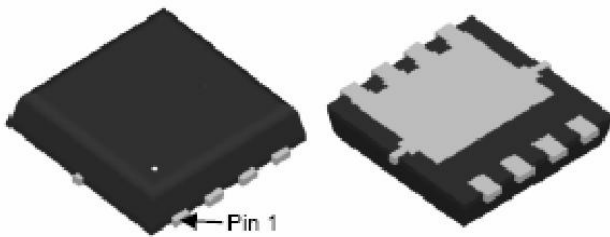
Feature

- Excellent gate charge x $R_{DS(on)}$ product(FOM)
- Very low on-resistance $R_{DS(on)}$

Application

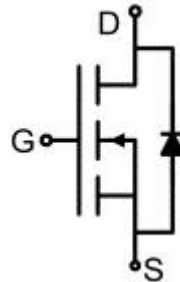
- DC/DC converter
- Ideal for high-frequency switching and synchronous rectification

Package

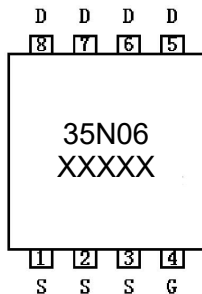


DFN3.3X3.3-8L

Circuit diagram



Marking



Absolute maximum ratings (T_c=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	35	A
Continuous Drain Current(T _C =100°C)	I _D (100 °C)	27	A
Pulsed Drain Current	I _{DM}	160	A
Power Dissipation	P _D	41	W
Thermal Resistance,Junction-to-Case ¹⁾	R _{θJC}	3.05	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_c=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 ²⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.7	2.4	V
Drain-source on-resistance ²⁾	R _{DS(on)}	V _{GS} =10V, I _D =20A		10	12	mΩ
		V _{GS} =4.5V, I _D =20A		13	15	
Dynamic characteristics³⁾						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f =1MHz		1010		pF
Output Capacitance	C _{oss}			183.2		
Reverse Transfer Capacitance	C _{rss}			9.9		
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =20A		21.8		nC
Gate-Source Charge	Q _{gs}			4.6		
Gate-Drain Charge	Q _{gd}			3.5		
Turn-on delay time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V, I _D =20A, R _G =1.6Ω		4.3		nS
Turn-on rise time	t _r			2.7		
Turn-off delay time	t _{d(off)}			13.8		
Turn-off fall time	t _f			2.7		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				35	A
Diode Forward voltage ²⁾	V _{SD}	V _{GS} =0V, I _S =20A			1.2	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = 20A		18		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs ²⁾		12		nC

Notes:

- 1) Surface Mounted on FR4 Board, t ≤ 10 sec.
- 2) Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- 3) Guaranteed by design, not subject to production.

Typical Characteristics

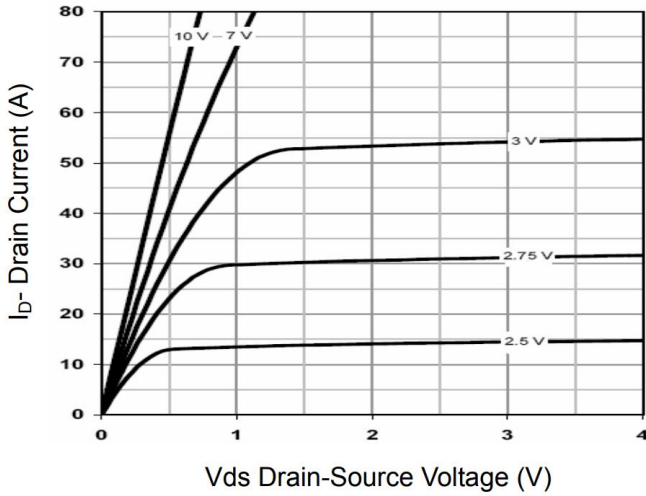


Figure 1 Output Characteristics

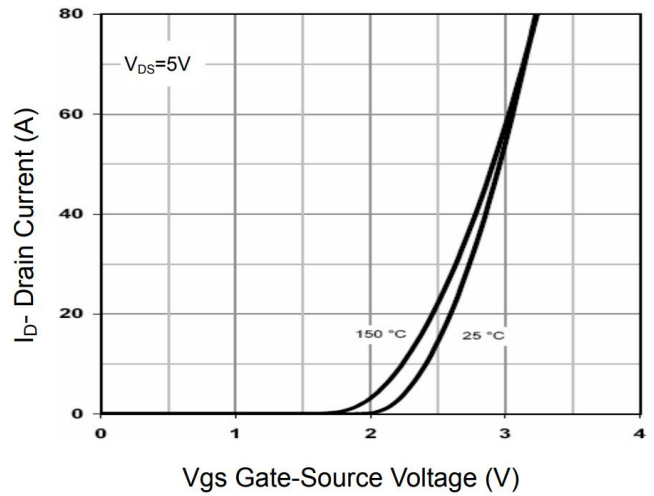


Figure 2 Transfer Characteristics

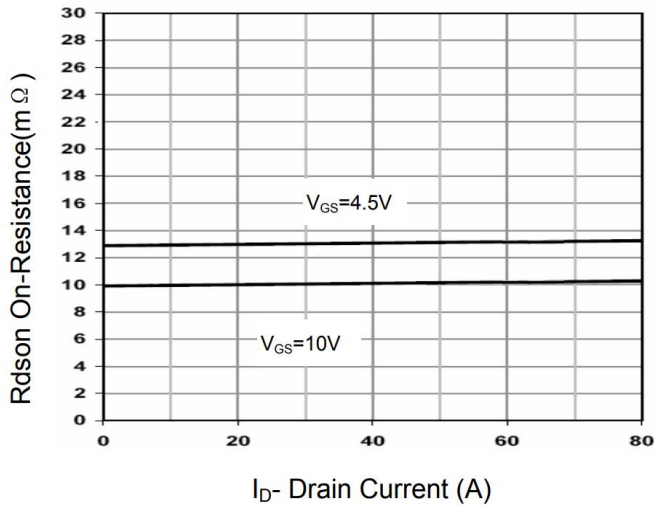


Figure 3 Rdson- Drain Current

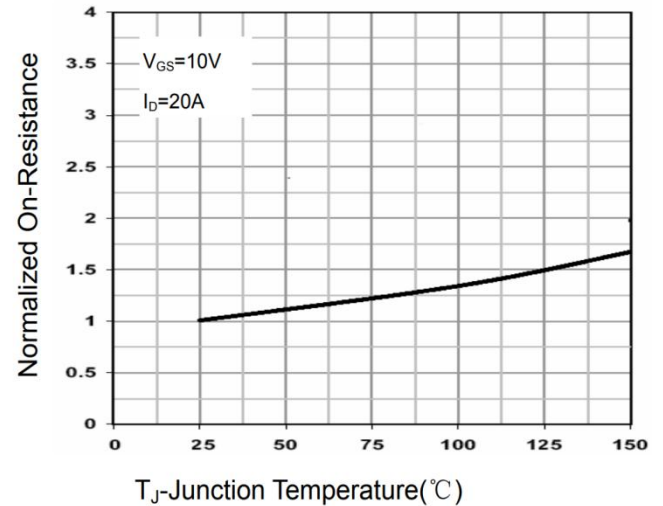


Figure 4 Rdson-Junction Temperature

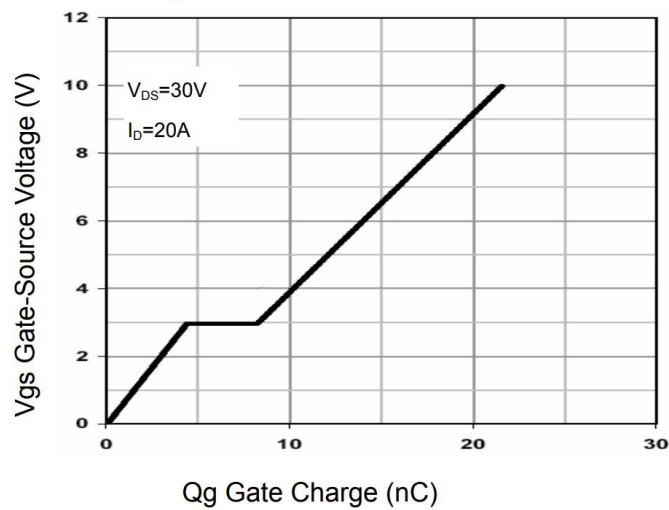


Figure 5 Gate Charge

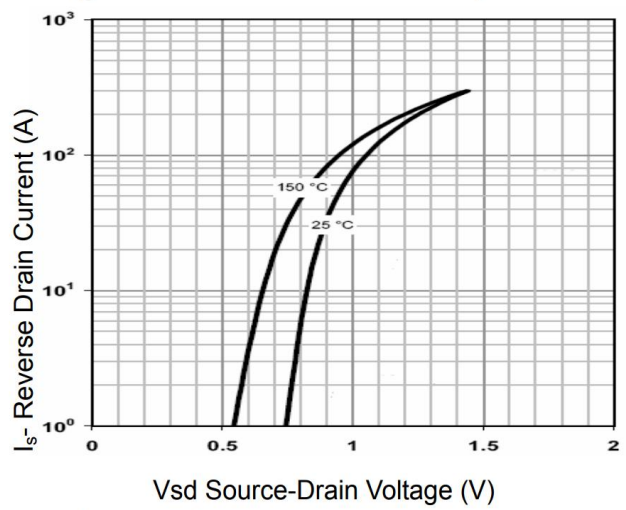
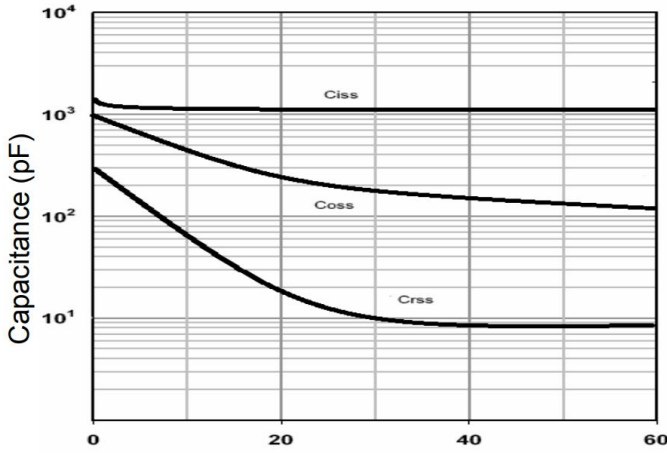
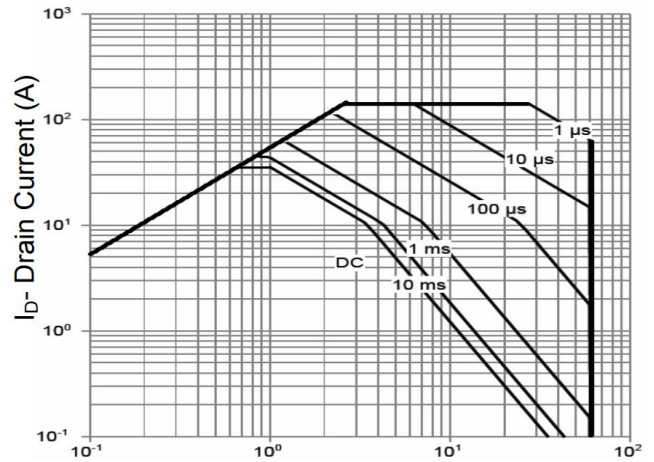


Figure 6 Source- Drain Diode Forward

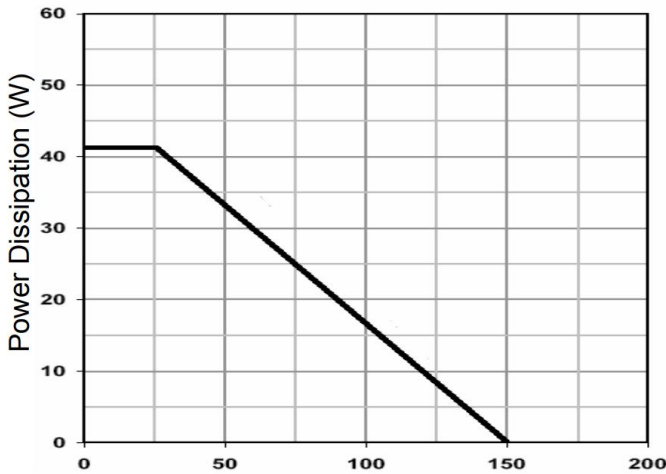
Typical Characteristics



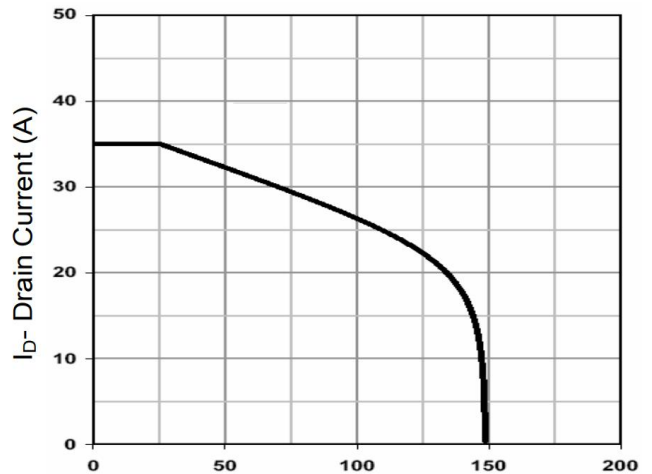
Vds Drain-Source Voltage (V)
Figure 7 Capacitance vs Vds



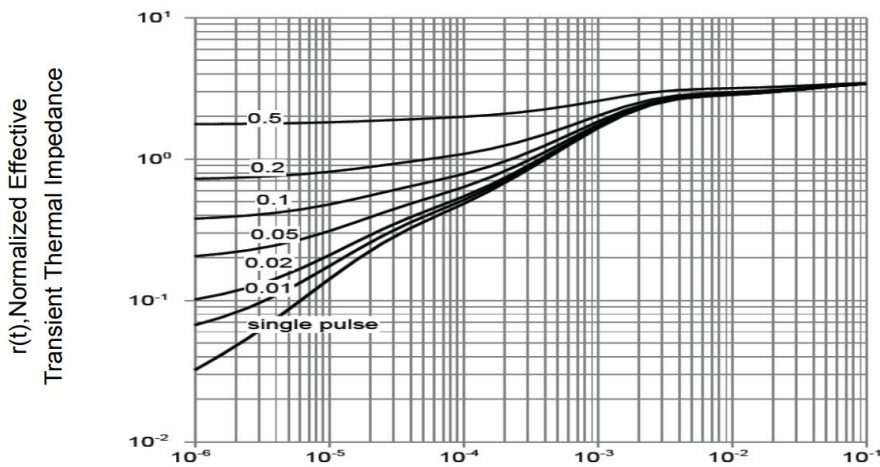
Vds Drain-Source Voltage (V)
Figure 8 Safe Operation Area



T_J-Junction Temperature(°C)
Figure 9 Power De-rating

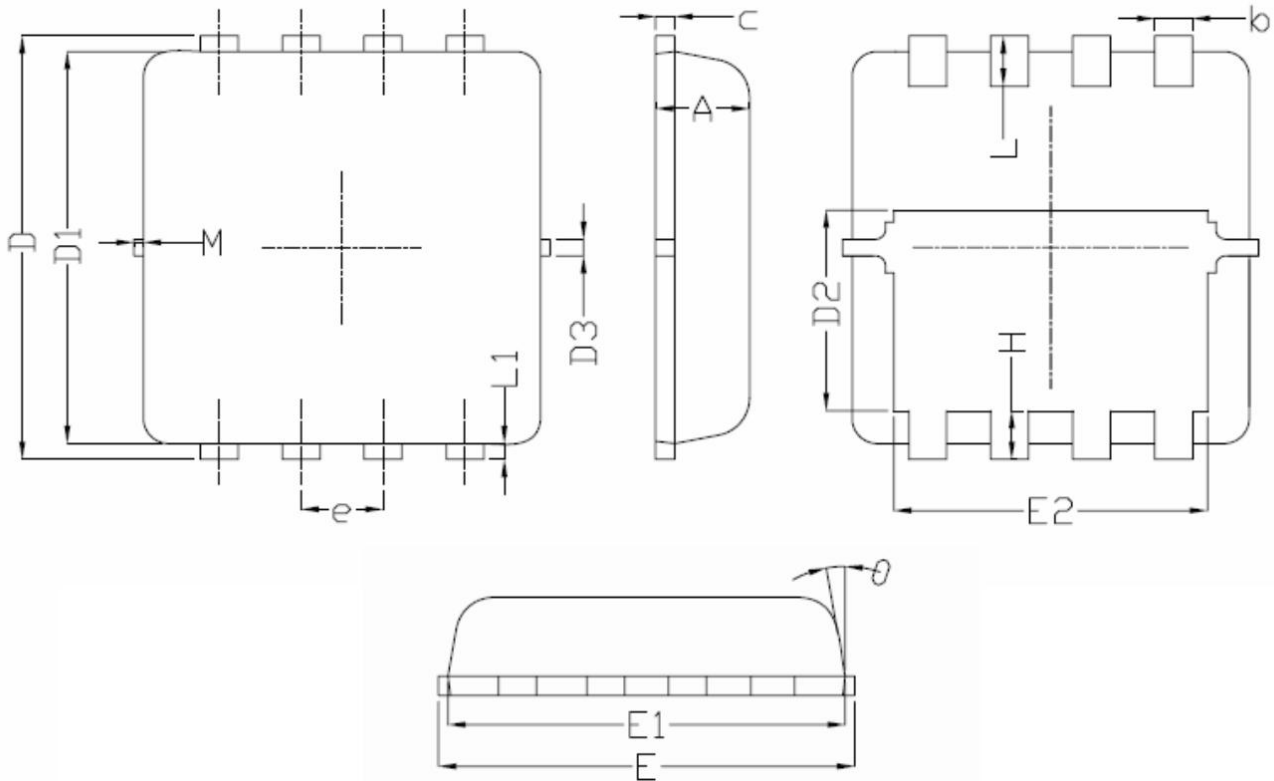


T_J-Junction Temperature (°C)
Figure 10 Current De-rating



Square Wave Pulse Duration(sec)
Figure 11 Normalized Maximum Transient Thermal Impedance

DFN3.3X3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
b	0.250	0.350	0.010	0.014
c	0.100	0.250	0.004	0.010
D	3.250	3.450	0.128	0.136
D1	3.000	3.200	0.118	0.126
D2	1.480	1.680	0.058	0.066
D3	0.130 BSC		0.005 BSC	
E	3.200	3.400	0.126	0.134
E1	3.000	3.200	0.118	0.126
E2	2.390	2.590	0.094	0.102
e	0.650 BSC		0.026 BSC	
H	0.300	0.500	0.012	0.020
L	0.300	0.500	0.012	0.020
L1	0.130 BSC		0.005 BSC	
M	0.000	0.150	0.000	0.006
θ	0°	12°	0°	12°