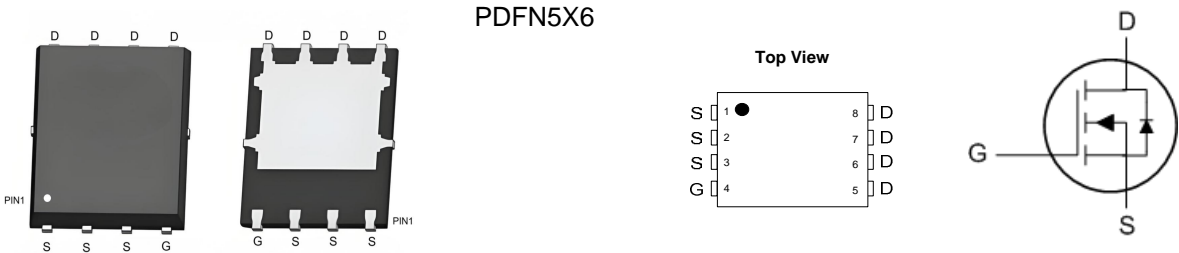


N-Channel 30V(D-S) MOSFET

Product summary		
V _{DS}	30	V
R _{DS(ON)} (at V _{GS} =10V) Typ.	1.35	mΩ
R _{DS(ON)} (at V _{GS} =4.5V) Typ.	1.8	mΩ
I _D (at V _{GS} =10V)	170	A

- Features
- Very Low R_{DS(ON)} at 4.5V V_{GS}
 - Fast Switching
 - 100% Avalanche Tested
 - RoHS and Halogen-Free Compliant
- Applications
- Synchronous Rectification
 - Networking DC-DC Power System
 - Power Tool Application

Pin Configuration



Packing Information

Device	Marking	Reel Size	Tape Width	Quantity
EC8310A	8310A .XXXX	13"	12mm	3000pcs

Absolute Maximum Ratings (at TA=25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Units
V _{DS}	Drain-Source Voltage		30	V
V _{GS}	Gate-Source Voltage		±20	V
I _D	Continuous Drain Current at V _{GS} =10V	T _C =25°C	170	A
		T _C =100°C	120	A
I _{DM}	Pulse Drain Current Tested ①	T _C =25°C	400	A
E _{AS}	Avalanche Energy ②		890	mJ
P _D	Power Dissipation	T _C =25°C	98	W
T _J ,T _{STG}	Junciton and Storage Temperature Range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Units
R _{θJC}	Thermal Resistance-Junction to Case ③	1.42	°C/W

Electrical Characteristics (at TJ =25°C Unless Otherwise Noted)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
Static Parameters						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V,I _D =250uA	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V,V _{GS} =0V	--	--	1	uA
I _{GSS}	Gate-Body Leakage Current	V _{DS} =0V,V _{GS} =±20V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =250uA	1.0	1.5	2.0	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V,I _D =85A	--	1.35	1.65	mΩ
		V _{GS} =4.5V,I _D =85A	--	1.8	2.2	mΩ
V _{SD}	Forward Voltage	I _{SD} =85A,V _{GS} =0V	--	--	1.2	V
Dynamic Parameters ④						
C _{iss}	Input Capacitance	V _{GS} =0V,V _{DS} =15V f=1MHZ	--	6150	7300	pF
C _{oss}	Output Capacitance		--	1550	2000	pF
C _{rss}	Reverse Transfer Capacitance		--	105	155	pF
Q _g	Total Gate Charge	V _{DS} =15V,I _D =85A V _{GS} =10V	--	98	117	nC
Q _{gs}	Gate-Source Charge		--	16	--	nC
Q _{gd}	Gate-Drain Charge		--	11	--	nC
Switching Parameters ④						
t _{D(on)}	Turn-on Delay Time	V _{DS} =15V,I _D =85A R _G =1.6Ω,V _{GS} =10V	--	13	--	nS
t _r	Turn-on Rise Time		--	7.5	--	nS
t _{D(off)}	Turn-off Delay Time		--	51	--	nS
t _f	Turn-off Fall Time		--	8.6	--	nS
t _{rr}	Reverse Recovery Time	I _F =I _S dI/dt=100A/us	--	32	--	nS
Q _{rr}	Reverse Recovery Charge		--	112	--	nC

Notes: ① Repetitive rating;pulse width limited by max.junction temperature
② EAS Condition:T_J=25°C,V_{DS}=20V,V_{GS}=10V,L=0.5mH,R_G=25Ω
③ Surface Mounted on FR4 Board,t≤10 sec
④ Guaranteed by design,not subject to production

Typical Characteristics

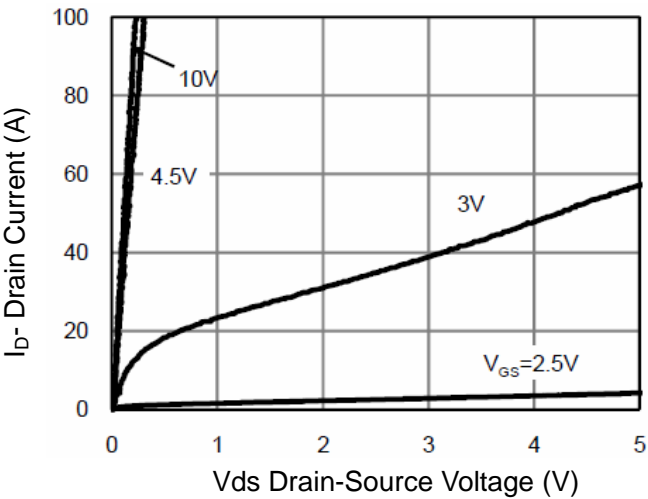


Figure 1 Output Characteristics

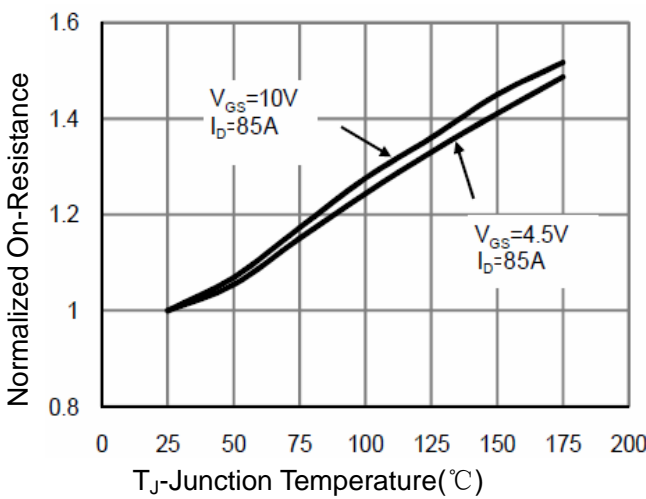


Figure 4 Rdson-Junction Temperature

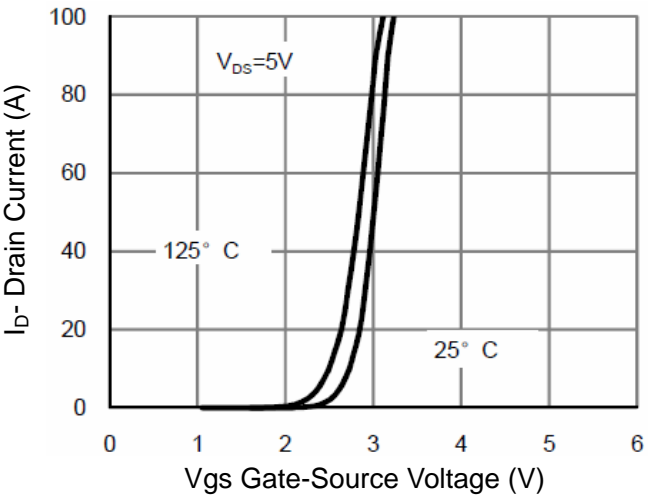


Figure 2 Transfer Characteristics

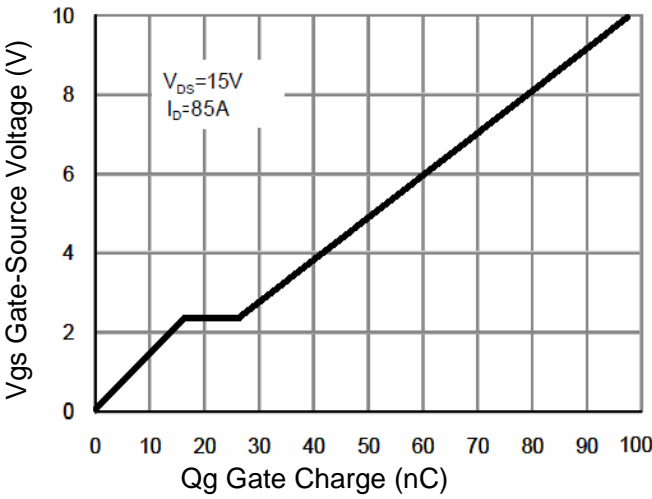


Figure 5 Gate Charge

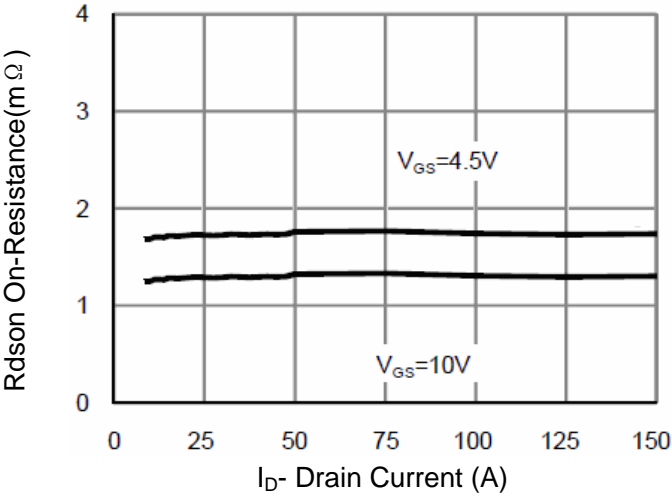


Figure 3 Rdson- Drain Current

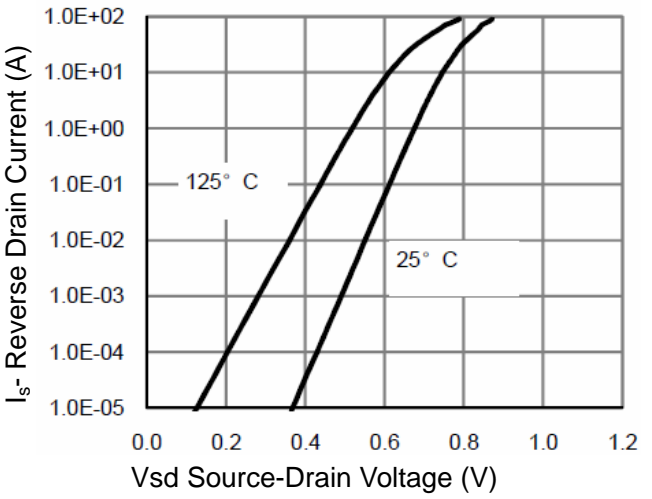


Figure 6 Source- Drain Diode Forward

Typical Characteristics

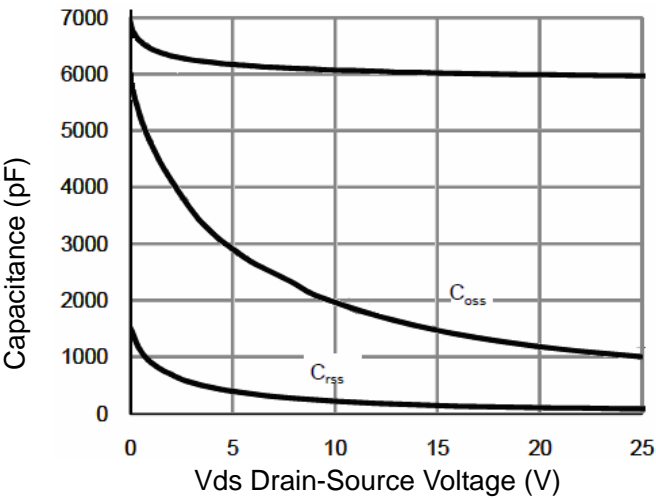


Figure 7 Capacitance vs Vds

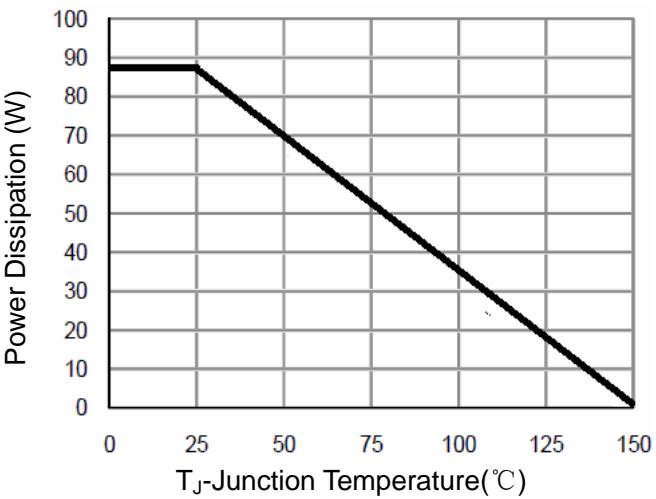


Figure 9 Power De-rating

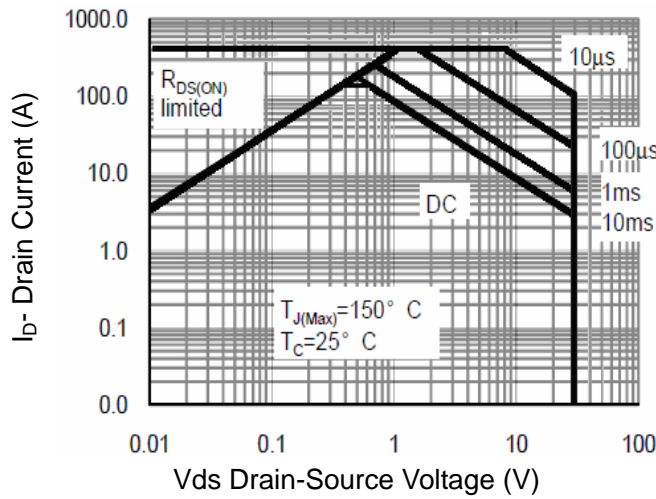


Figure 8 Safe Operation Area

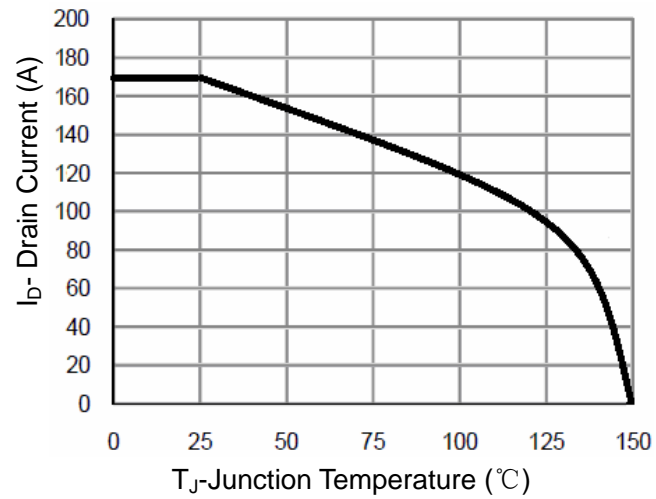


Figure 10 Current De-rating

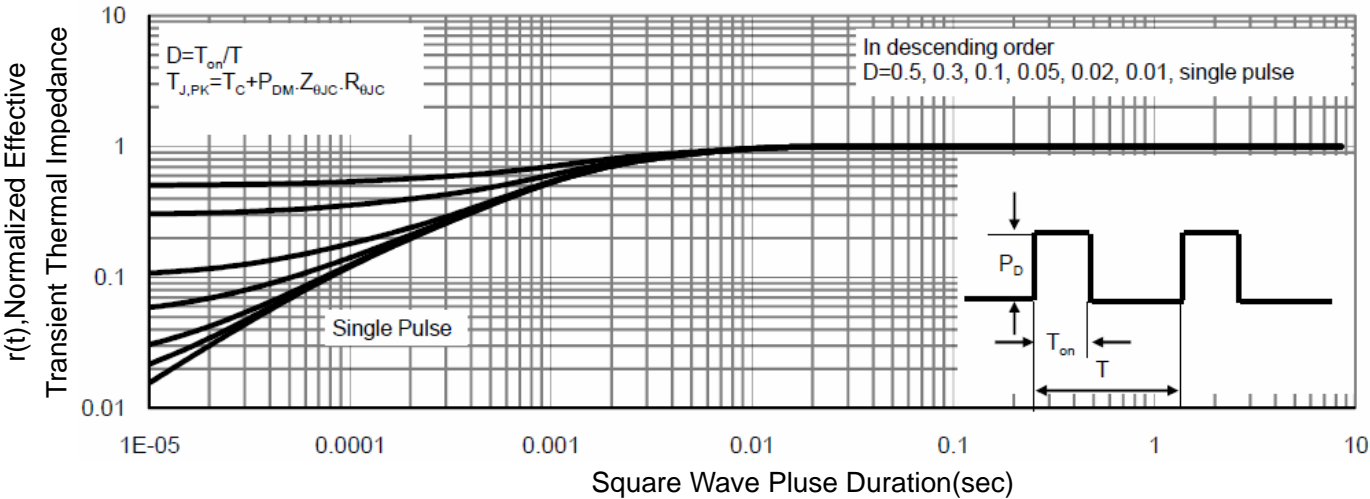
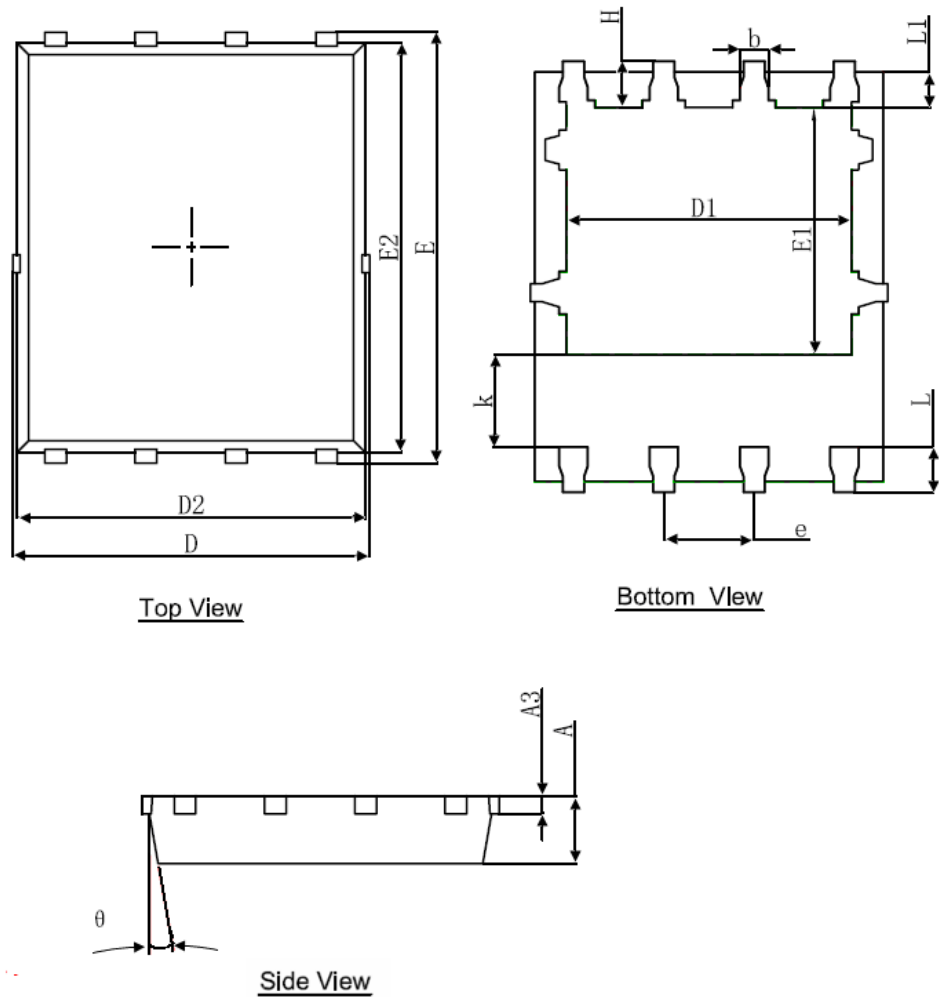


Figure 11 Normalized Maximum Transient Thermal Impedance

PDFN5X6 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	8°	12°	8°	12°