

Features

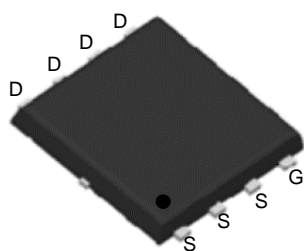
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

Product Summary

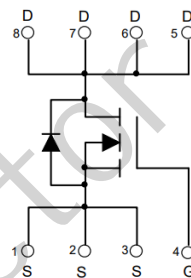
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
60V	17m Ω @10V	50A
	23m Ω @4.5V	

Application

- Power switching application



PDFN5X6-8L top view



Schematic diagram

Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		60	V
V_{GS}	Gate-Source Voltage		± 20	V
T_J	Maximum Junction Temperature		150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-50 to 155	$^{\circ}\text{C}$
I_S	Diode Continuous Forward Current	$T_C=25^{\circ}\text{C}$	50	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}\text{C}$	190	A
I_D	Continuous Drain Current@GS=10V	$T_C=25^{\circ}\text{C}$	50	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$	83	W
E_{AS}	Single pulse avalanche energy ^{Note1}		98	mJ

Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
BV _{(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	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.1	1.6	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =20A	--	13	17	mΩ
		V _{GS} =4.5V, I _D =20A	--	18	23	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	--	1890	--	pF
C _{OSS}	Output Capacitance		--	115	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	90	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =30V, I _D =20A, V _{GS} =10V	--	40	--	nC
Q _{gs}	Gate Source Charge		--	7	--	nC
Q _{gd}	Gate Drain Charge		--	8.5	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =30V, R _L =6.7Ω, V _{GS} =10V, R _G =3Ω	--	13	--	nS
t _r	Turn-on Rise Time		--	25	--	nS
t _{d(off)}	Turn-Off Delay Time		--	60	--	nS
t _f	Turn-Off Fall Time		--	10	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =20A,	--	0.8	1.2	V

Note: 1.L=0.5mH, VDD=30V, Start T_J=25°C.

Typical Operating Characteristics

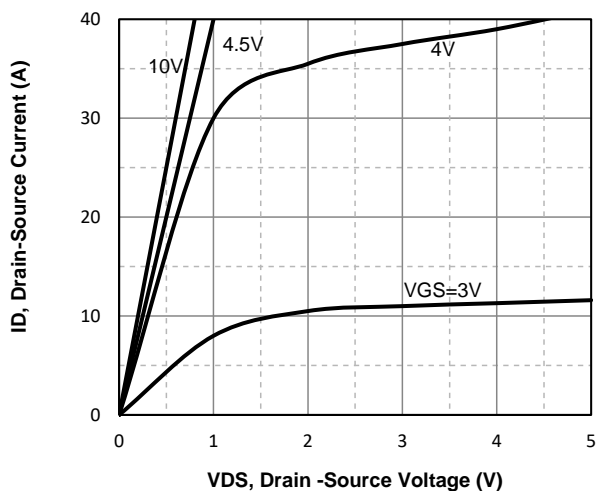


Fig1. Typical Output Characteristics

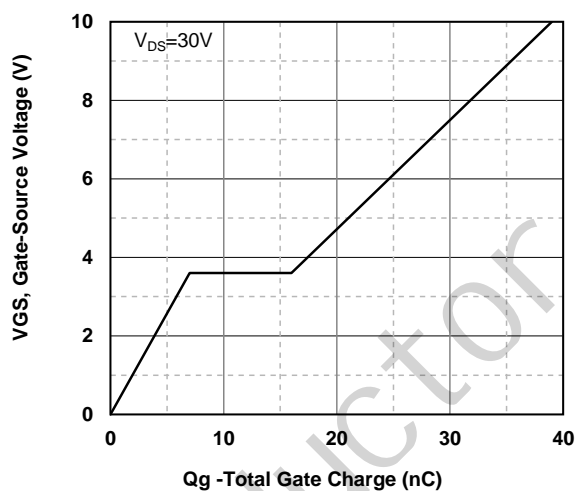


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

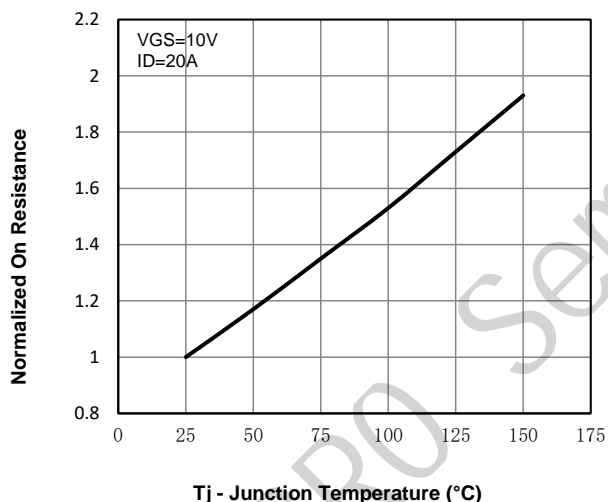


Fig3. Normalized On-Resistance Vs. Temperature

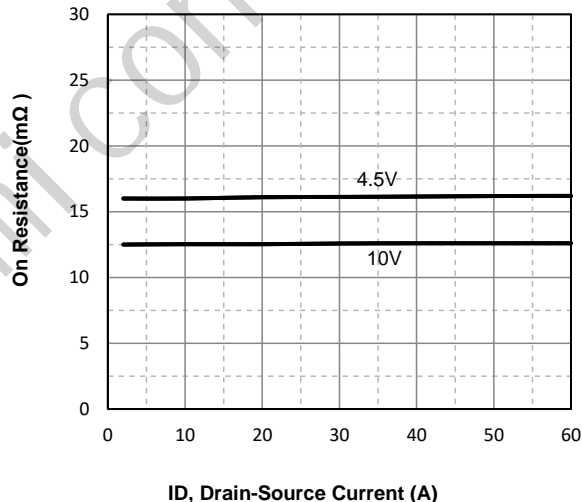


Fig4. On-Resistance Vs. Drain-Source Current

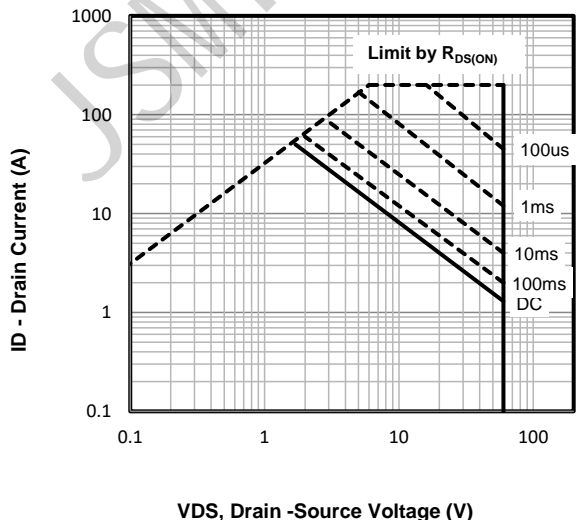


Fig5. Maximum Safe Operating Area

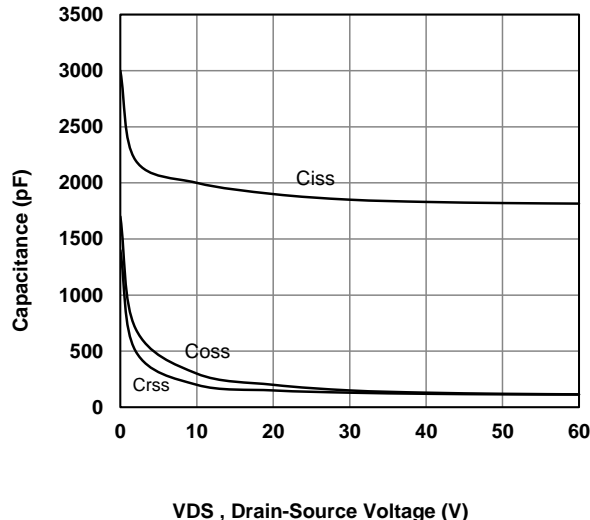


Fig6 Typical Capacitance Vs. Drain-Source

PDFN5X6-8L Package information

