

Features

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low R_{DS(ON)}

Applications

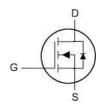
- DC-DC Converters
- Power management functions
- Synchronous-rectification applications

Product Summary

BVDSS	RDSON	ID
60V	6.5mΩ	65A

PDFN5060-8L Pin Configuration





Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current, V _{GS} @ 10V ^{1,6}	65	А
I _D @T _C =100°C	Continuous Drain Current, V _{GS} @ 10V ^{1,6}	40	А
I _{DM}	Pulsed Drain Current ²	260	А
EAS	Single Pulse Avalanche Energy ³	57.8	mJ
I _{AS}	Avalanche Current	17	А
P _D @T _C =25°C	Total Power Dissipation ⁴	31.25	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
TJ	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Тур.	Max.	Unit
Reja	Thermal Resistance Junction-Ambient ¹		52	°C/W
Rejc	Thermal Resistance Junction-Case ¹		4	°C/W



Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit	
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA				V	
$\triangle BV_{DSS}/\triangle T_{J}$	BV _{DSS} Temperature Coefficient	Reference to 25°C , I _D =1mA				V/°C	
В	Static Drain-Source On-Resistance ²	V _{GS} =10V , I _D =20A		6.5	9	mΩ	
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =4.5V , I _D =10A		8.7	13		
V _{GS(th)}	Gate Threshold Voltage	\\ _\\ 250\	1.3	1.7	2.2	V	
$\Delta V_{GS(th)}$	V _{GS(th)} Temperature Coefficient	$V_{GS}=V_{DS}$, $I_D=250uA$				mV/°C	
	Dunin Course Lookens Cument	V _{DS} =60V , V _{GS} =0V , T _J =25°C			1		
I _{DSS}	Drain-Source Leakage Current	V _{DS} =60V, V _{GS} =0V , T _J =55°C			5	uA	
I _{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 20V$, $V_{DS} = 0V$			±100	nA	
gfs	Forward Transconductance V _{DS} =10V , I _D =20A			56		S	
R _g	Gate Resistance V _{DS} =0V , V _{GS} =0V , f=1MHz			1.5		Ω	
Q _g	Total Gate Charge	e Charge		21.7			
Q _{gs}	Gate-Source Charge	V _{DS} =30V , V _{GS} =F€V , I _D =20A		3.9		nC	
Q _{gd}	Gate-Drain Charge			4.5			
T _{d(on)}	Turn-On Delay Time			7.3			
Tr	Rise Time	V _{DD} =30V , V _{GS} =10V ,		8.5			
T _{d(off)}	Turn-Off Delay Time	$R_G=OH\Omega$, $I_D=20A$		19.6		ns	
T _f	Fall Time			5.6			
C _{iss}	Input Capacitance			1210			
C _{oss}	Output Capacitance	vance V _{DS} =30V , V _{GS} =0V , f=1MHz		355		pF	
C _{rss}	Reverse Transfer Capacitance			17			

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V , Force Current			65	А
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =1A , T _J =25°C			1.2	V

Note:

FÈ he Ádata Á ested Ány Ásurface Ánnounted Ánn Ás Ál Ánch² FR-4 Ánoard Ávith Á2OZ Ásopper.

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dissipation.



Typical Characteristics

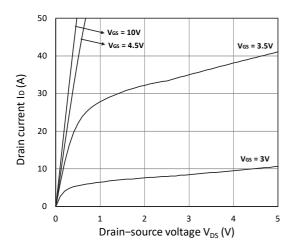


Figure 1. Output Characteristics

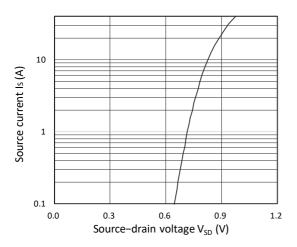


Figure 3. Forward Characteristics of Reverse

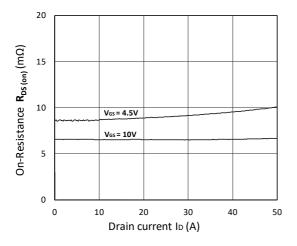


Figure 5. $R_{DS(ON)}$ vs. I_D

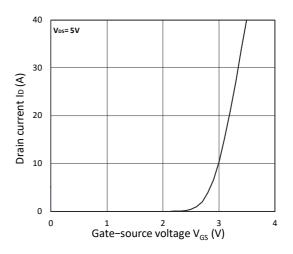


Figure 2. Transfer Characteristics

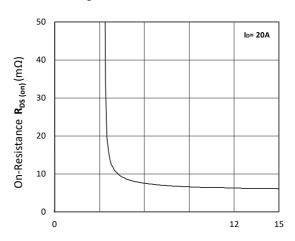


Figure 4. $R_{\text{DS}(\text{ON})}\,$ vs. $V_{\text{GS}}\,$

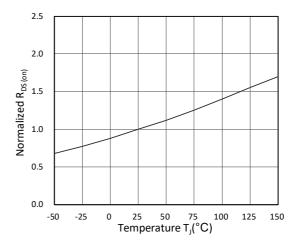


Figure 6. Normalized $R_{\text{DS(on)}}$ vs. Temperature



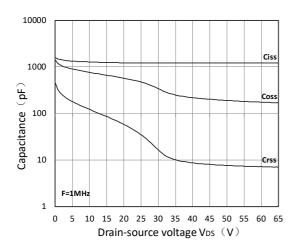


Figure 7. Capacitance Characteristics

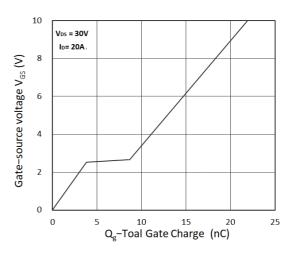


Figure 8. Gate Charge Characteristics

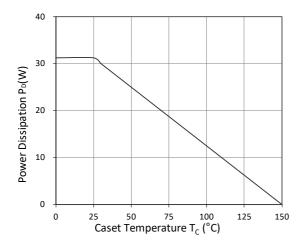


Figure 9. Power Dissipation

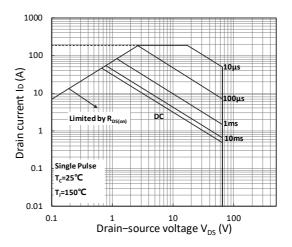


Figure 10. Safe Operating Area

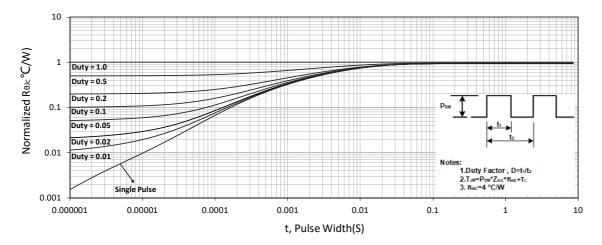
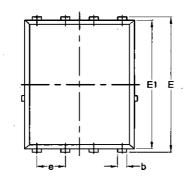
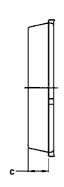


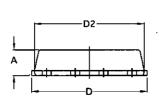
Figure 11. Normalized Maximum Transient Thermal Impedance

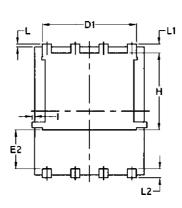


Package Mechanical Data-PDFN5060-8L-JQ Single









Symbol	Common			
	mm	mm		
	Mim	Max	Min	Max
Α	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
С	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
е	1.27 BSC	1.27 BSC		·
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
Н	3.30	3.50	0.1299	0.1378
1	/	0.18	/	0.0070



Flow (wave) soldering (solder dipping)

Product	Peak Temperature	Dipping Time
Pb device	245℃±5℃	5sec±1sec
Pb-Free device	260℃+0/-5℃	5sec±1sec



This integrated circuit can be damaged by ESD UniverChip Corporation recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedure can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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