



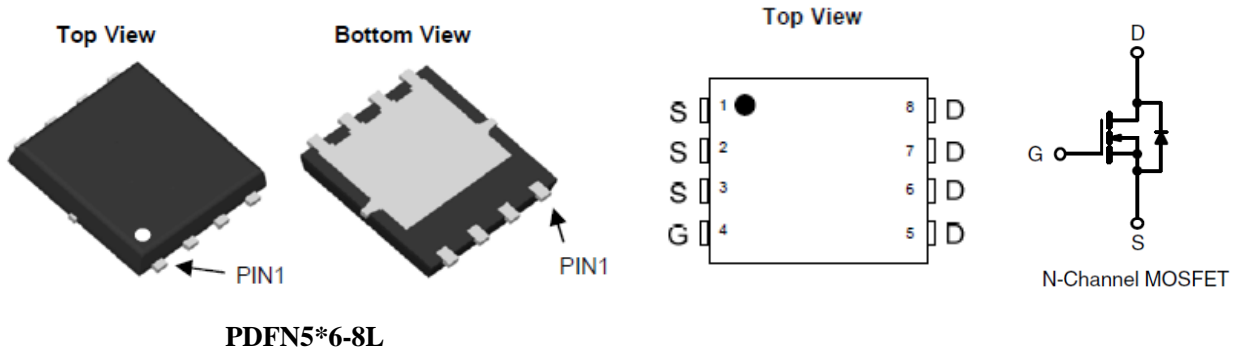
● Features

$V_{DS} = 115V$,
 $I_D = 86A$
 $R_{DS(ON)} @ V_{GS} = 10V, TYP 6.9m\Omega$
 $R_{DS(ON)} @ V_{GS} = 6.0V, TYP 7.5m\Omega$
 $R_{DS(ON)} @ V_{GS} = 4.5V, TYP 8.3m\Omega$

● General Description

- Synchronous Rectification for Flyback Converters
- Charger for Mobile Devices
- USB-PD Adaptors

● Pin Configurations



● Absolute Maximum Ratings @ $T_A=25^\circ C$ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	115	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current (Continuous) *C	$T_C=25^\circ C$	I_D	86	A
	$T_C=100^\circ C$		54.7	
Drain Current (Pulse) *B		I_{DM}	336	A
Power Dissipation	$T_C=25^\circ C$	P_D	104	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	$^\circ C$

● Thermal Resistance Ratings

Parameter		Symbol	Maximum	Unit
Maximum Junction-to-Ambient *A	$t \leq 10s$	R_{thJA}	20	$^\circ C/W$
Maximum Junction-to-Case (Drain) *A	Steady State	R_{thJC}	1.2	

● Electrical Characteristics @ $T_A=25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static*^D						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	115	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 92V, V_{GS} = 0V$	--	--	1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_{DS} = 250\mu A$	1	--	3	V
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	--	--	± 100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$	--	6.9	9	m Ω
	$R_{DS(on)}$	$V_{GS} = 6.0V, I_D = 10A$	--	7.5	9.8	m Ω
	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 10A$	--	8.3	10.8	m Ω
Diode Forward Voltage	V_{SD}	$I_{SD} = 1A, V_{GS} = 0V$	--	--	1.2	V
Diode Forward Current * ^{AC}	I_S	$T_C = 25^\circ\text{C}$	--	--	86	A
Switching						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=60V, I_D=20A$	--	43	--	nC
Gate-Source Charge	Q_{gs}		--	9.5	--	nC
Gate-Drain Charge	Q_{gd}		--	5.2	--	nC
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=60V,$ $R_L=3\Omega, R_{GEN}=3\Omega$	--	9.5	--	ns
Turn-on Rise Time	t_r		--	3.3	--	ns
Turn-off Delay Time	$t_{d(off)}$		--	32	--	ns
Turn-Off Fall Time	t_f		--	5.2	--	ns
Dynamic						
Input Capacitance	C_{iss}	$V_{DS}=60V, V_{GS}=0V, f=1.0\text{MHz}$	--	3088	--	pF
Output Capacitance	C_{oss}		--	339	--	pF
Reverse Transfer Capacitance	C_{rss}		--	8.5	--	pF

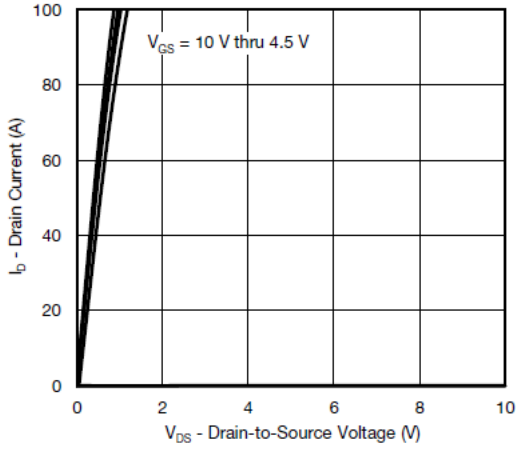
A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

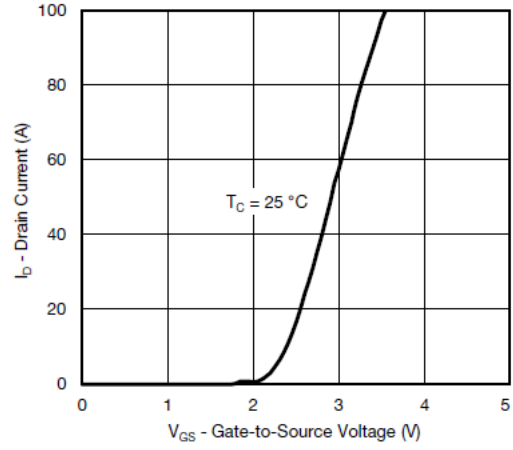
C: The current rating is based on the $t \leq 10\text{s}$ junction to ambient thermal resistance rating.

D: Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycles $\leq 2\%$.

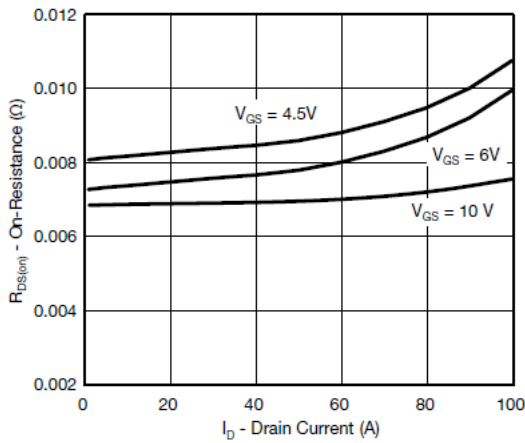
● Typical Performance Characteristics (T_J = 25 °C, unless otherwise noted)



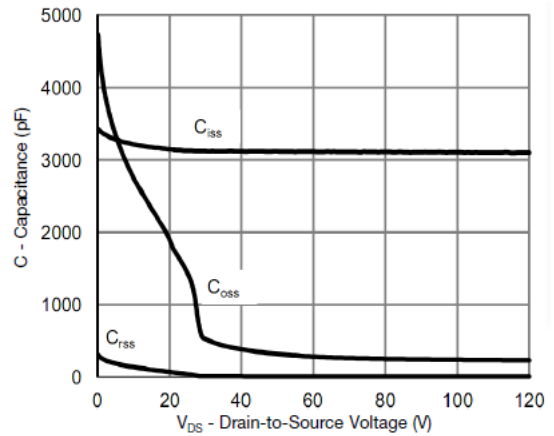
Output Characteristics



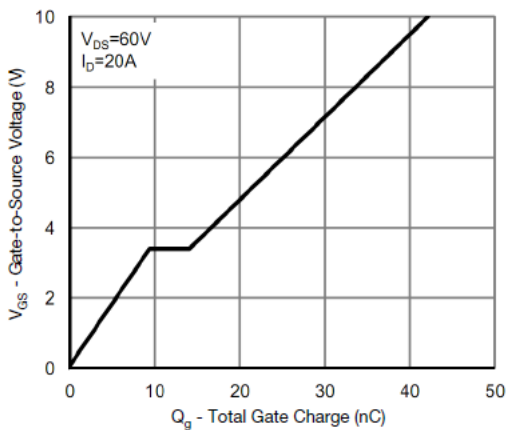
Transfer Characteristics



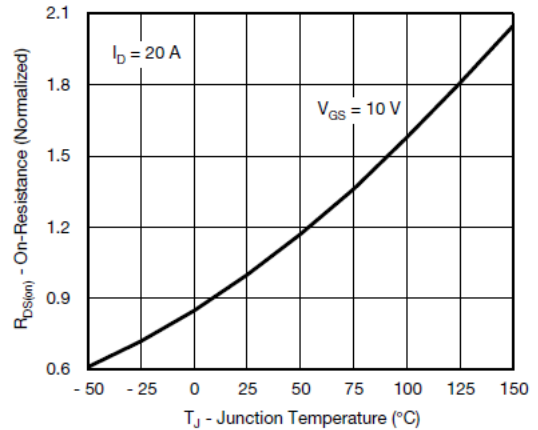
On-Resistance vs. Drain Current



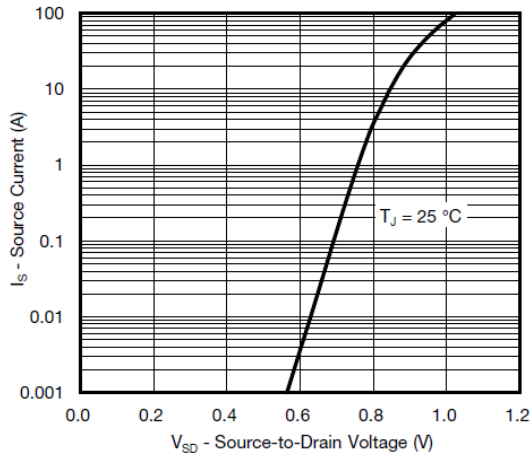
Capacitance



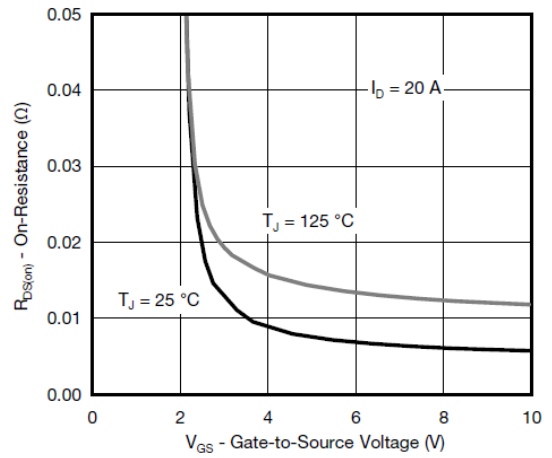
Gate Charge



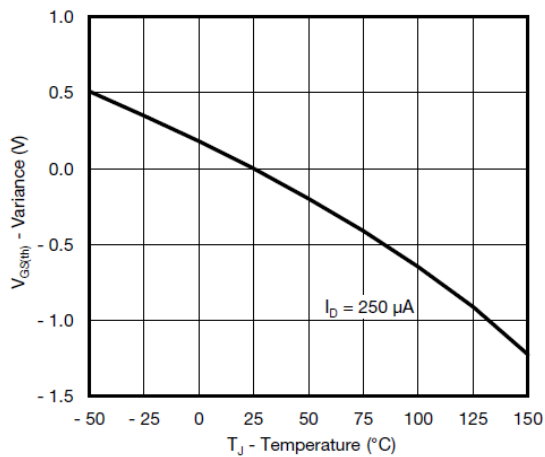
On-Resistance vs. Junction Temperature



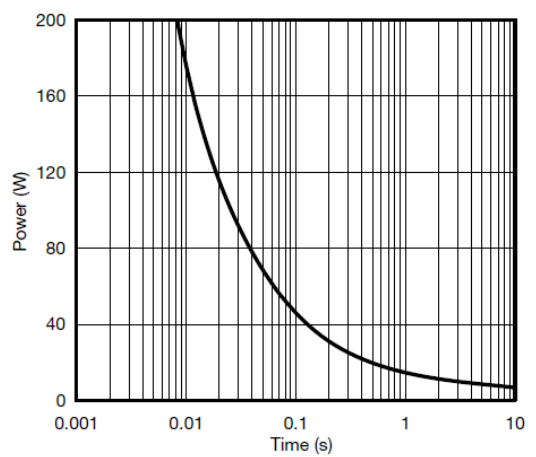
Source-Drain Diode Forward Voltage



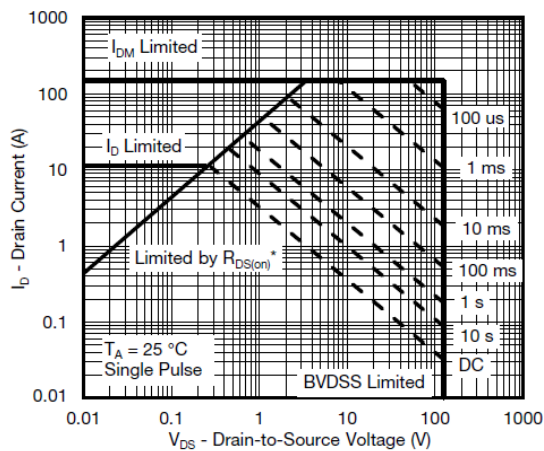
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

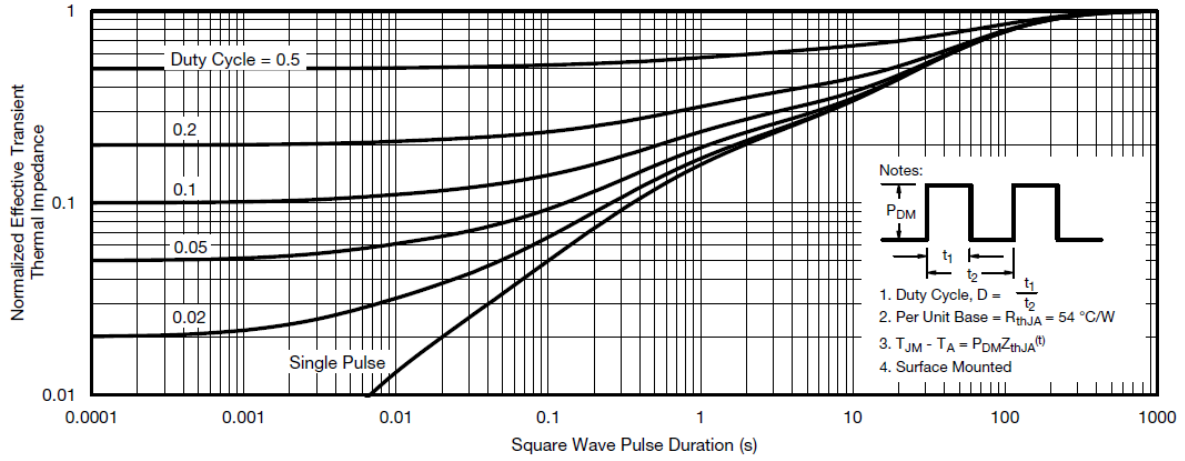


Single Pulse Power, Junction-to-Ambient

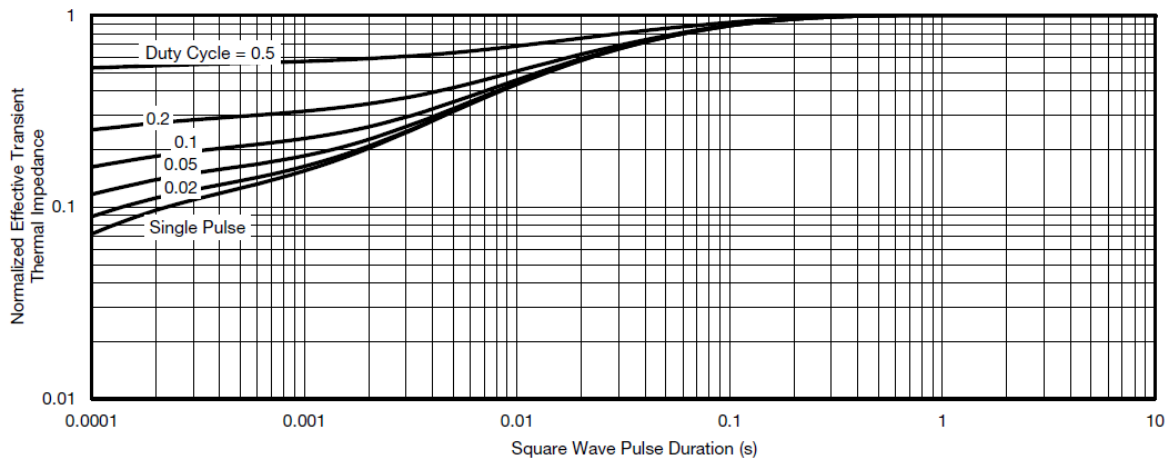


* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

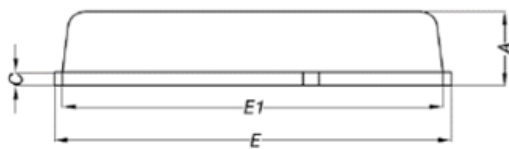
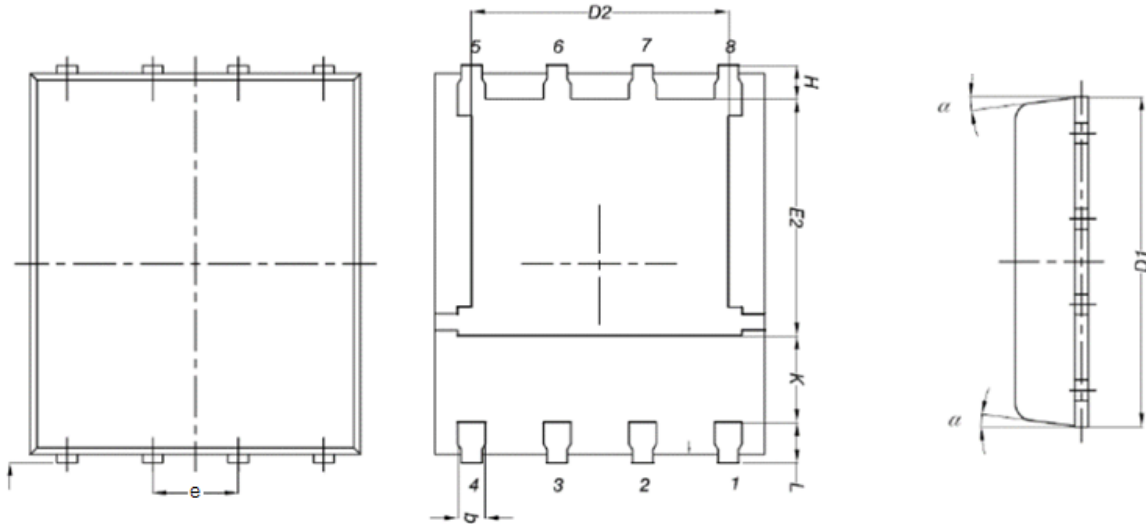


Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case

● Package Information



DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
<i>A</i>	0.8	--	1.1
<i>b</i>	0.2	--	0.51
<i>C</i>	0.15	--	0.35
<i>D1</i>	4.8	--	5.3
<i>D2</i>	3.61	--	4.15
<i>E</i>	5.85	--	6.3
<i>E1</i>	5.45	--	6
<i>E2</i>	3.3	--	4.2
<i>e</i>	--	1.27	--
<i>H</i>	0.41	--	0.71
<i>K</i>	1.1	--	1.5
<i>L</i>	0.45	--	0.74
<i>a</i>	0°	--	12°

Flow (wave) soldering (solder dipping)

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



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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