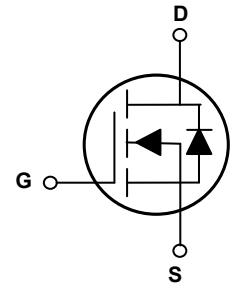
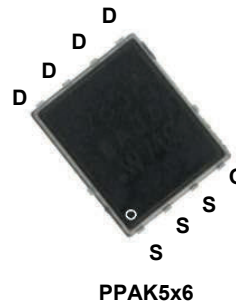


Main Product Characteristics

$V_{(BR)DSS}$	150V
$R_{DS(ON)}$	52m Ω (Typ)
I_D	20A



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The GSFP68015 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supplies and a wide variety of other applications.

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, @ Steady-State ($T_C=25^\circ\text{C}$) ¹	I_D	20	A
Continuous Drain Current, @ Steady-State ($T_C=100^\circ\text{C}$)		14	A
Pulsed Drain Current ²	I_{DM}	80	A
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	75	W
Linear Derating Factor ($T_C=25^\circ\text{C}$)		0.6	W/ $^\circ\text{C}$
Single Pulse Avalanche Energy ³	E_{AS}	25	mJ
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.6	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State) ⁴	$R_{\theta JA}$	50	$^\circ\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	150	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS}=150V, V_{GS}=0V$	-	-	1	μA
		$T_J=125^\circ\text{C}$	-	-	50	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{GS}=20V$	-	-	100	nA
		$V_{GS}=-20V$	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5A$	-	52	68	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.1	3	3.9	V
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0V,$ $V_{DS}=75V, f=1\text{MHz}$	-	518	-	pF
Output Capacitance	C_{oss}		-	76	-	
Reverse Transfer Capacitance	C_{rss}		-	3.3	-	
Total Gate Charge	Q_g	$I_D=5A, V_{DS}=75V, V_{GS}=10V$	-	9.1	-	nC
Gate-to-Source Charge	Q_{gs}		-	3.5	-	
Gate-to-Drain ("Miller") Charge	Q_{gd}		-	1.8	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=30V, I_D=5A,$ $R_{GEN}=6\Omega$	-	7.3	-	nS
Rise Time	t_r		-	24	-	
Turn-Off Delay Time	$t_{d(off)}$		-	14	-	
Fall Time	t_f		-	22	-	
Gate Resistance	R_g	$f=1\text{MHz}$	-	2.5	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	20	A
Pulsed Source Current (Body Diode)	I_{SM}		-	-	80	A
Diode Forward Voltage	V_{SD}	$I_S=2A, V_{GS}=0V$	-	-	1.2	V
Reverse Recovery Time	T_{rr}	$I_S=5A, V_{GS}=0V$	-	53	-	μS
Reverse Recovery Charge	Q_{rr}	$di/dt=100A/\mu\text{s}$	-	0.11	-	nC

Notes

1. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. $L=0.5\text{mH}, R_G=25\Omega, V_{DD}=50V, I_{AS}=10A, T_J=25^\circ\text{C}$.
4. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Electrical and Thermal Characteristic Curves

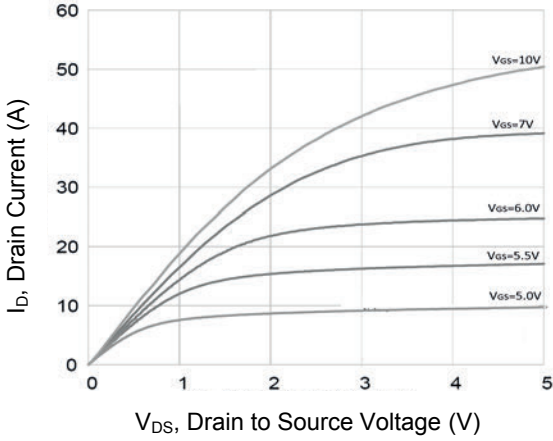


Figure 1. Typical Output Characteristics

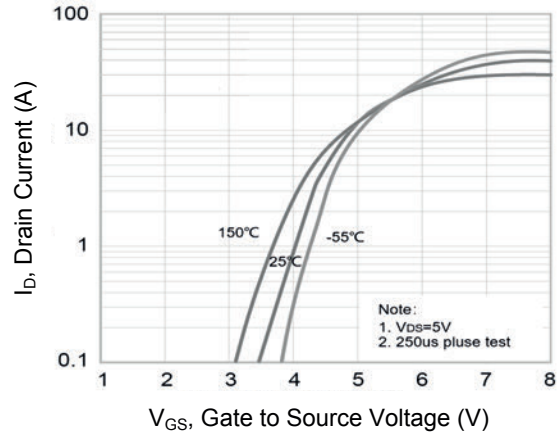


Figure 2. Transfer Characteristics

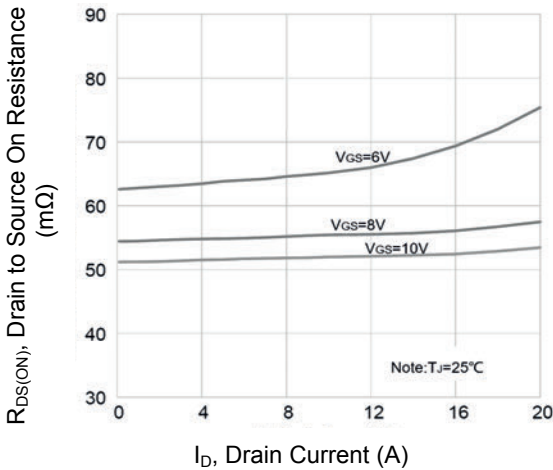


Figure 3. $R_{DS(ON)}$ Vs. Drain Current

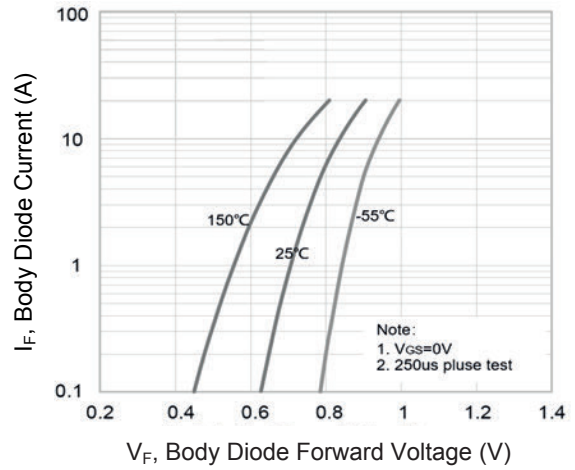


Figure 4. Body Diode Characteristics

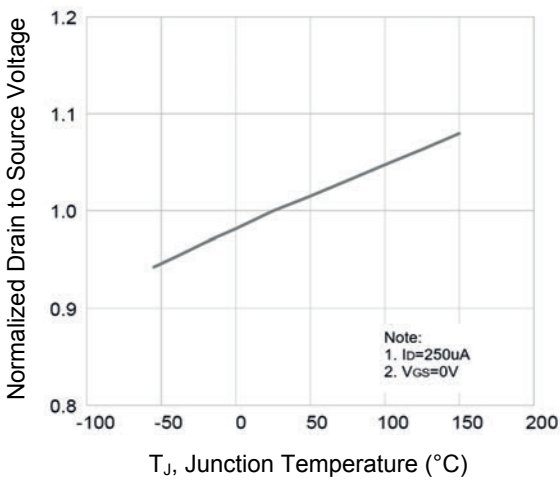


Figure 5. Normalized BV_{DSS} Vs. T_J

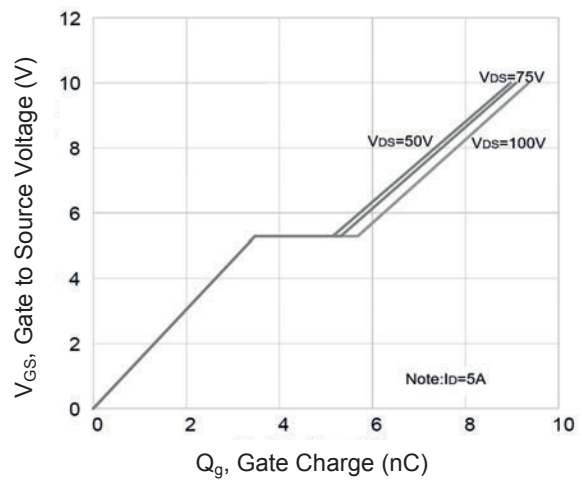


Figure 6. Gate Charge

Typical Electrical and Thermal Characteristic Curves

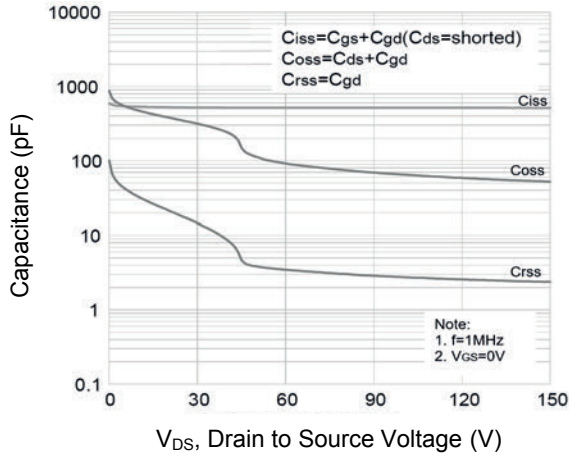


Figure 7. Capacitance Characteristics

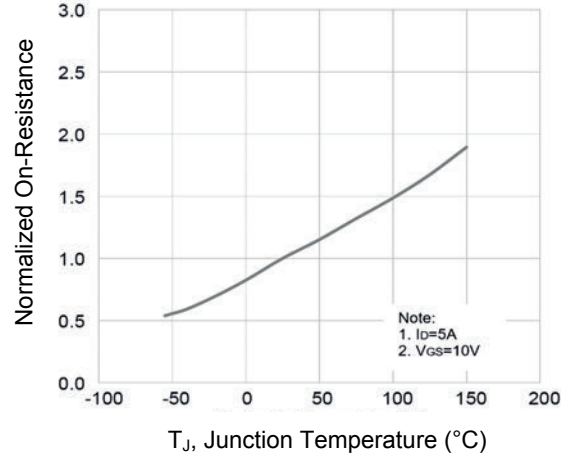
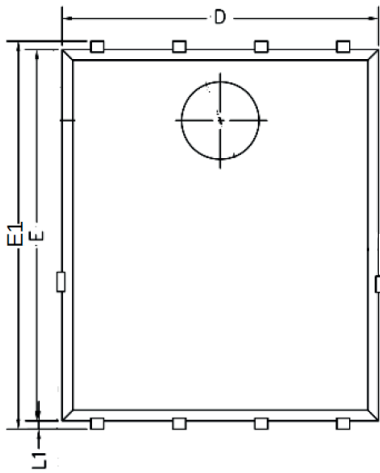
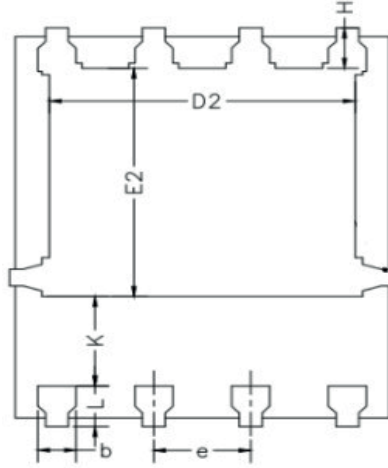


Figure 8. Normalized $R_{DS(ON)}$ Vs. T_J

Package Outline Dimensions (PPAK5x6)



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.20	0.035	0.047
b	0.30	0.55	0.012	0.022
C	0.15	0.35	0.006	0.014
D	4.70	5.20	0.185	0.205
D2	3.76	4.20	0.148	0.165
E2	3.30	3.85	0.130	0.152
E	5.60	5.90	0.220	0.232
E1	5.80	6.20	0.228	0.244
K	1.10	-	0.043	-
H	0.45	0.75	0.018	0.030
L	0.45	0.75	0.018	0.030
L1	0.25	0.45	0.010	0.018
e	1.27 BSC		0.050 BSC	

Order Information

Device	Package	Marking	Carrier	Quantity
GSFP68015	PPAK5x6	P68015	Tape & Reel	5,000 Pcs / Reel