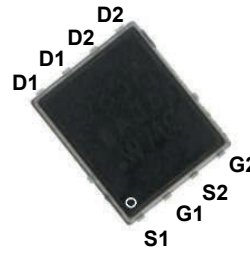
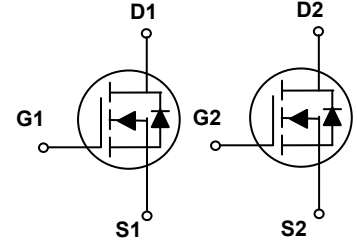


Main Product Characteristics

$V_{(BR)DSS}$	100V
$R_{DS(ON)}$	27m Ω (Max)
I_D	32A



PPAK5x6



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 GSFP27010 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 ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Parameter	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, @ Steady-State ($T_C=25^\circ\text{C}$) ¹	I_D	32	A
Continuous Drain Current, @ Steady-State ($T_C=100^\circ\text{C}$) ¹		23	A
Pulsed Drain Current ($T_C=25^\circ\text{C}$) ²	I_{DM}	128	A
Power Dissipation ($T_C=25^\circ\text{C}$) ³	P_D	69	W
Single Pulse Avalanche Energy	E_{AS}	9.8	mJ
Single Pulse Avalanche Current	I_{AS}	14	A
Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	62	$^\circ\text{C/W}$
Junction-to-Case	$R_{\theta JC}$	1.81	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	$^\circ\text{C}$
Soldering Temperature (SMD)	T_{sold}	260	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	100	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS}=100\text{V}, V_{GS}=0\text{V}, T_J=25^{\circ}\text{C}$	-	-	1.0	μA
		$V_{DS}=100\text{V}, V_{GS}=0\text{V}, T_J=125^{\circ}\text{C}$	-	1.2	-	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=20\text{V}$	-	-	100	nA
		$V_{DS}=0\text{V}, V_{GS}=-20\text{V}$	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=6\text{A}$	-	20	27	m Ω
		$V_{GS}=10\text{V}, I_D=5\text{A}$	-	24	29	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.1	-	2.8	V
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$	-	1053	-	pF
Output Capacitance	C_{oss}		-	129	-	
Reverse Transfer Capacitance	C_{rss}		-	3.9	-	
Total Gate Charge ^{4,5}	Q_g	$I_D=10\text{A}, V_{DD}=50\text{V}, V_{GS}=10\text{V}$	-	15	-	nC
Gate-to-Source Charge ^{4,5}	Q_{gs}		-	4.2	-	
Gate-to-Drain ("Miller") Charge ^{4,5}	Q_{gd}		-	3.6	-	
Gate Plateau ^{4,5}	$V_{plateau}$		-	3.9	-	V
Turn-on Delay Time ^{4,5}	$t_{d(on)}$	$V_{DD}=50\text{V}, V_{GS}=10\text{V}, R_G=1.6\Omega, I_D=8\text{A}$	-	6.2	-	nS
Rise Time ^{4,5}	t_r		-	30	-	
Turn-Off Delay Time ^{4,5}	$t_{d(off)}$		-	20	-	
Fall Time ^{4,5}	t_f		-	9.3	-	
Gate Resistance	R_g	$f=1\text{MHz}$	-	1.8	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	32	A
Diode Pulse Current	$I_{S, pulse}$		-	-	128	A
Diode Forward Voltage	V_{SD}	$I_S=8\text{A}, V_{GS}=0\text{V}$	-	-	1.4	V
Reverse Recovery Time ⁴	T_{rr}	$I_S=8\text{A}, V_{GS}=0\text{V}, V_R=50\text{V}, dI_F/dt=100\text{A}/\mu\text{s}$	-	33	-	nS
Reverse Recovery Charge ⁴	Q_{rr}		-	36	-	nC

Notes:

- The rated value only refers to the maximum absolute value under 25°C shell temperature in the manual. If the shell temperature is higher than 25°C , the rating shall be reduced according to the actual environmental conditions.
- Pulse time $5\mu\text{s}$, and the pulse width is limited to the maximum junction temperature.
- The value of dissipated power will change with the temperature. When the temperature is higher than 25°C , the value of dissipated power will decrease by $0.04\text{W}/^{\circ}\text{C}$ with each temperature rise of 1°C .
- Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
- Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

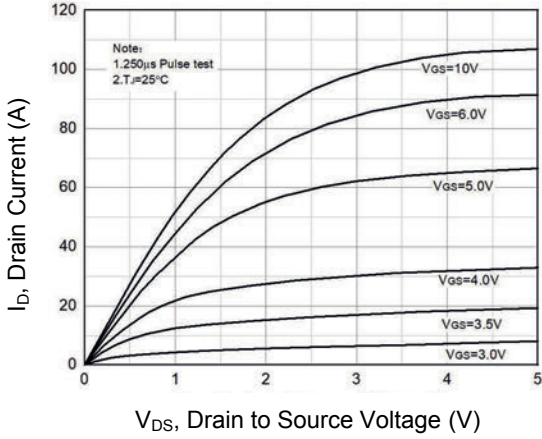


Figure 1. Typical Output Characteristics

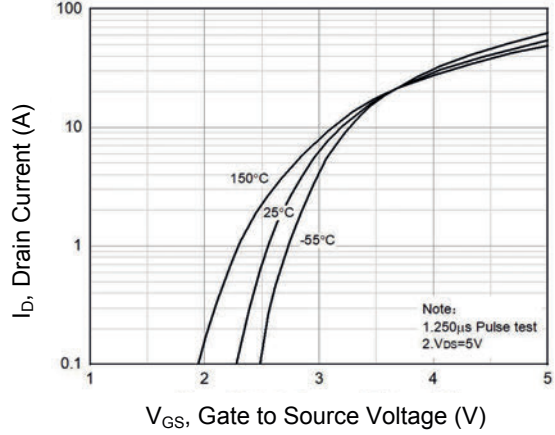


Figure 2. Transfer Characteristics

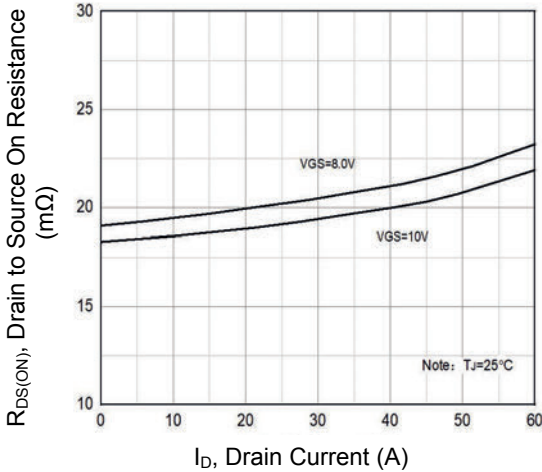


Figure 3. $R_{DS(ON)}$ vs. Drain Current

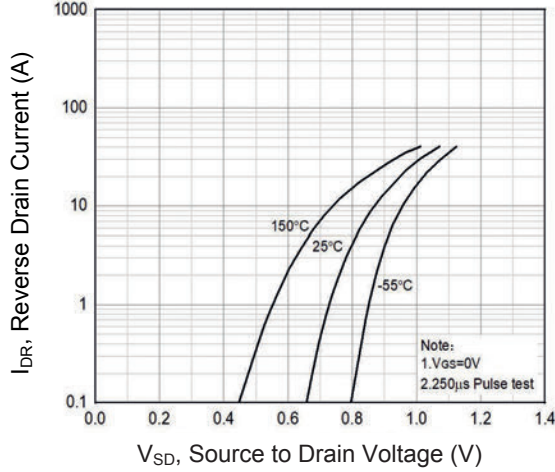


Figure 4. Body Diode Characteristics

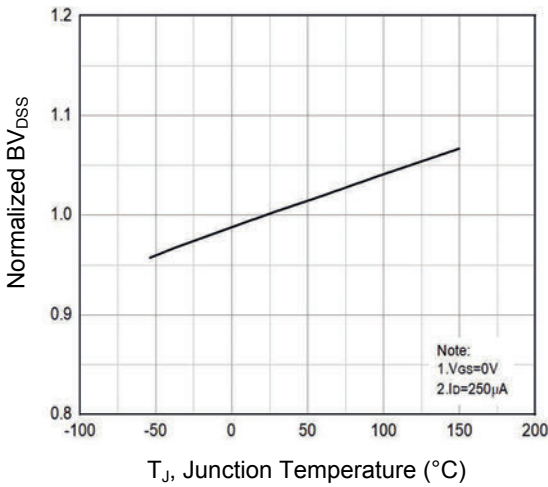


Figure 5. Normalized BV_{DSS} vs. T_J

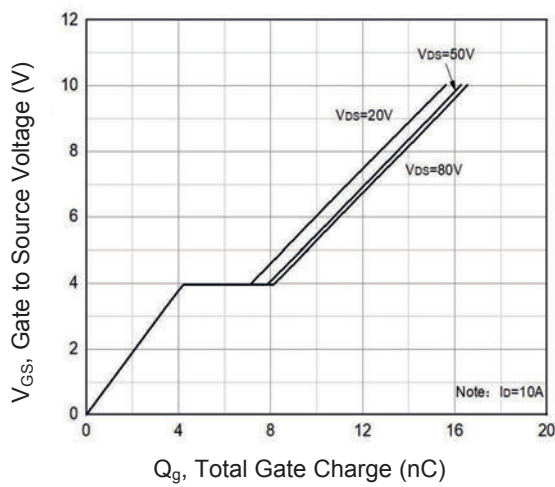


Figure 6. Gate Charge

Typical Electrical and Thermal Characteristic Curves

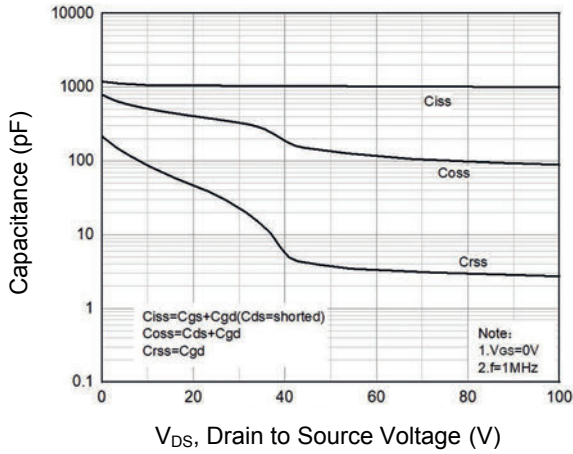


Figure 7. Capacitance Characteristics

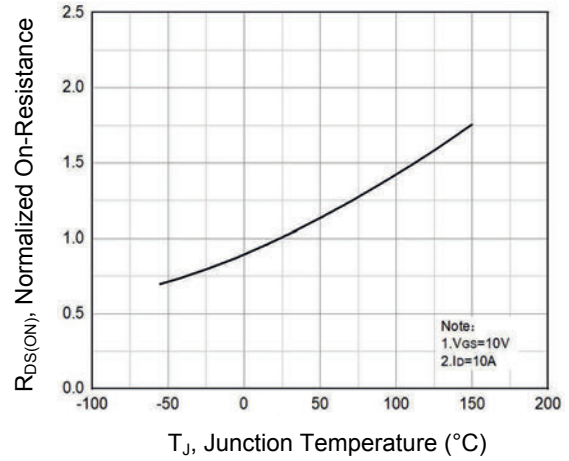


Figure 8. Normalized $R_{DS(ON)}$ vs. T_J

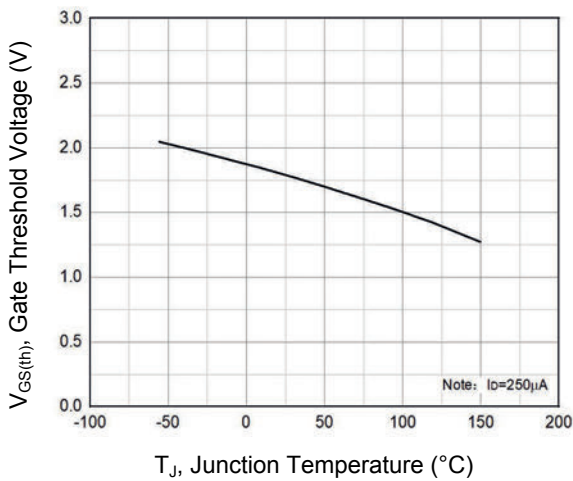


Figure 9. Gate Threshold Voltage vs. T_J

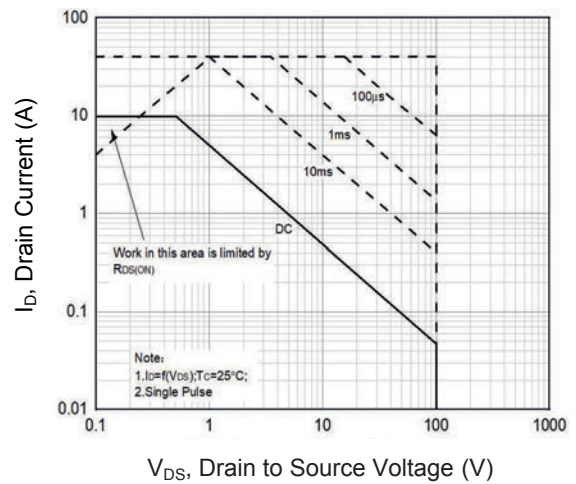
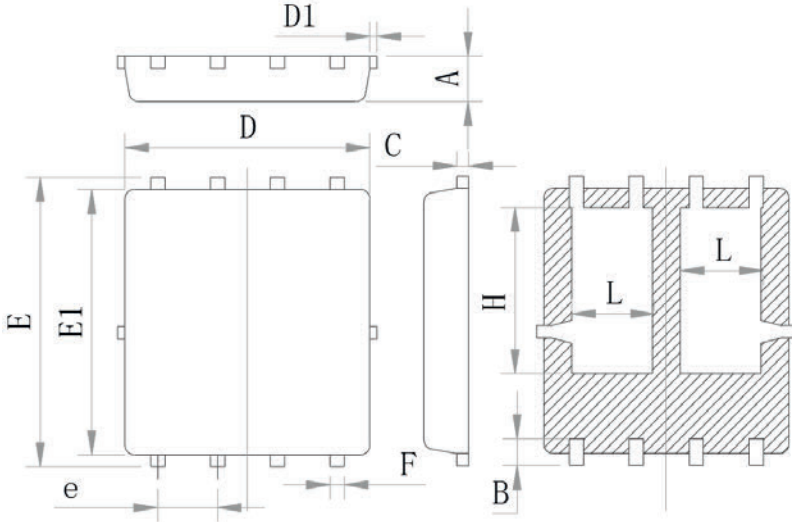


Figure 10. Safe Operation Area

Package Outline Dimensions (PPAK5x6)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.00	0.035	0.039
B	0.48	0.68	0.019	0.027
C	0.20	0.30	0.008	0.012
D	5.00	5.40	0.197	0.213
D1	-	0.15	-	0.006
E	5.90	6.20	0.232	0.244
E1	5.60	6.00	0.220	0.236
e	1.22	1.32	0.048	0.052
F	0.25	0.35	0.010	0.014
H	3.27	3.67	0.129	0.144
L	1.50	1.90	0.059	0.075

Order Information

Device	Package	Marking	Quantity	HSF Status
GSFP27010	PPAK5x6	P27010	5,000pcs / Reel	RoHS Compliant