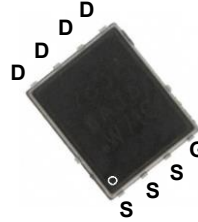
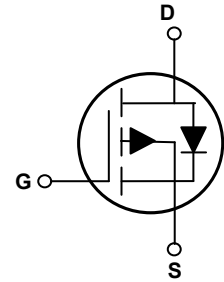


### Main Product Characteristics

$BV_{DSS}$	-30V
$R_{DS(ON)}$	8.5m $\Omega$
$I_D$	-60A



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 GSFP0361 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 supply 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	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous ( $T_C=25^{\circ}\text{C}$ )	$I_D$	-60	A
Drain Current-Continuous ( $T_C=100^{\circ}\text{C}$ )		-38	
Drain Current-Pulsed <sup>1</sup>	$I_{DM}$	-240	A
Power Dissipation ( $T_C=25^{\circ}\text{C}$ )	$P_D$	96	W
Power Dissipation-Derate above 25 $^{\circ}\text{C}$		0.77	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.3	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature Range	$T_J$	-55 To +150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55 To +150	$^{\circ}\text{C}$

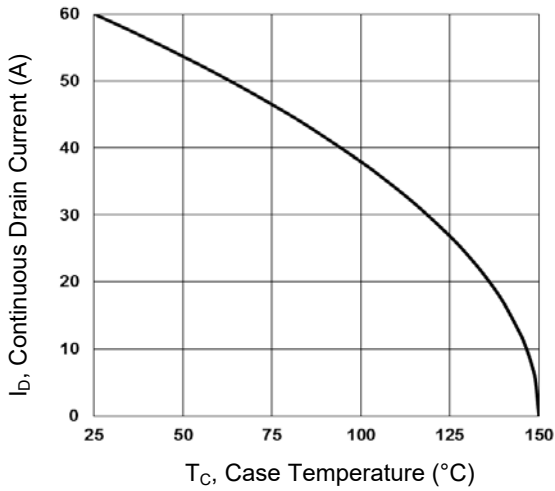
**Electrical Characteristics** ( $T_J=25^{\circ}\text{C}$  unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>On/Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	-	-	-1	$\mu A$
		$V_{DS}=-24V, V_{GS}=0V, T_J=125^{\circ}\text{C}$	-	-	-10	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-10A$	-	7.1	8.5	m $\Omega$
		$V_{GS}=-4.5V, I_D=-8A$	-	11.5	14	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1.2	-1.6	-2.5	V
Forward Transconductance	$g_{fs}$	$V_{DS}=-10V, I_D=-10A$	-	14	-	S
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>2,3</sup>	$Q_g$	$V_{DS}=-15V, I_D=-10A, V_{GS}=-4.5V$	-	35	56	nC
Gate-Source Charge <sup>2,3</sup>	$Q_{gs}$		-	10.8	16	
Gate-Drain Charge <sup>2,3</sup>	$Q_{gd}$		-	10.6	16	
Turn-On Delay Time <sup>2,3</sup>	$t_{d(on)}$	$V_{DD}=-15V, R_G=6\Omega, V_{GS}=-10V, I_D=-1A$	-	24.5	38	nS
Rise Time <sup>2,3</sup>	$t_r$		-	10.5	16	
Turn-Off Delay Time <sup>2,3</sup>	$t_{d(off)}$		-	156.8	230	
Fall Time <sup>2,3</sup>	$t_f$		-	50	75	
Input Capacitance	$C_{iss}$	$V_{DS}=-15V, V_{GS}=0V, F=1\text{MHz}$	-	3300	4800	pF
Output Capacitance	$C_{oss}$		-	410	700	
Reverse Transfer Capacitance	$C_{rss}$		-	280	500	
Gate Resistance	$R_g$	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	-	8.5	12	$\Omega$
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Source Current	$I_S$	$V_G=V_D=0V, \text{Force Current}$	-	-	-60	A
Pulsed Source Current	$I_{SM}$		-	-	-120	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-1A, T_J=25^{\circ}\text{C}$	-	-	-1	V

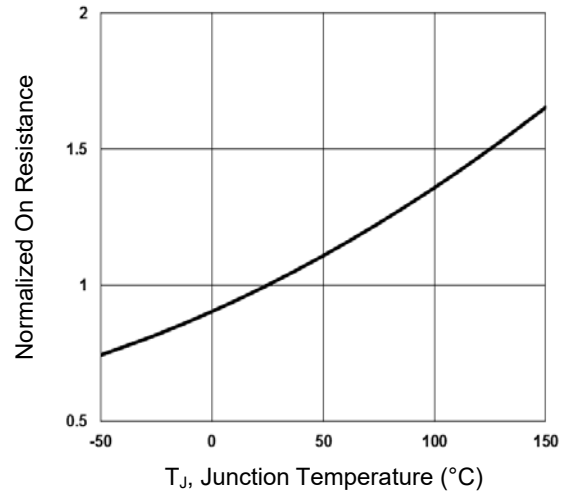
Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
3. Essentially independent of operating temperature.

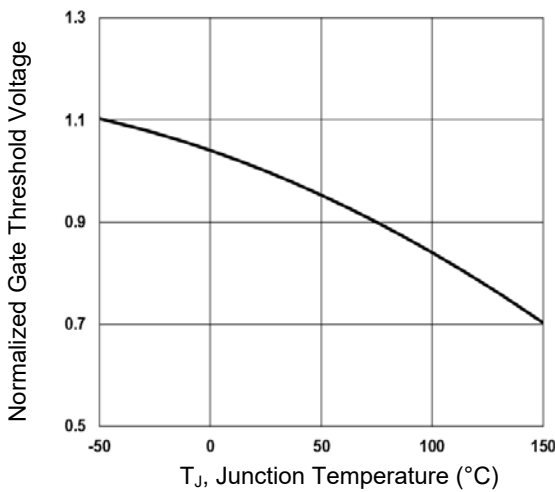
**Typical Electrical and Thermal Characteristic Curves**



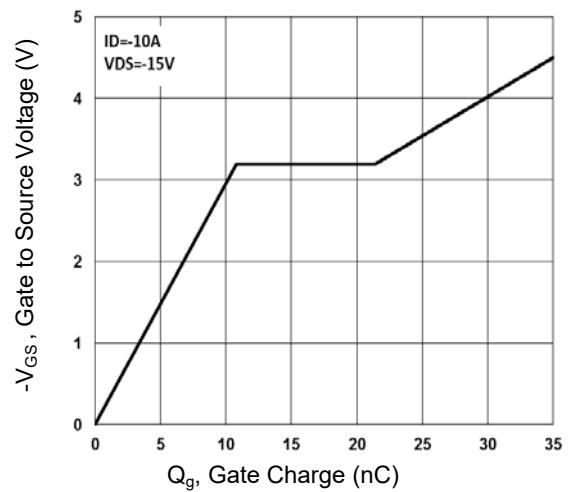
**Figure 1. Continuous Drain Current vs.  $T_C$**



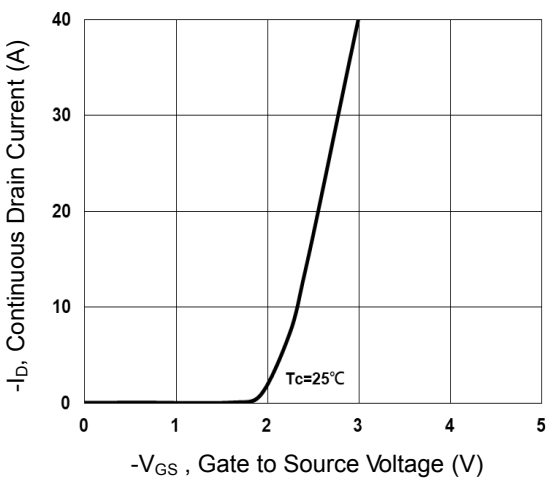
**Figure 2. Normalized  $R_{DSON}$  vs.  $T_J$**



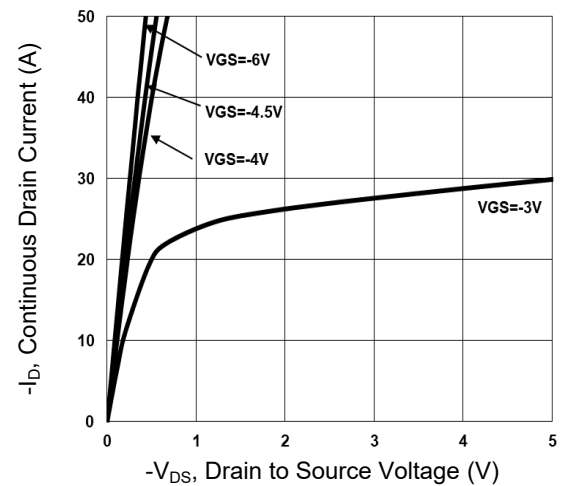
**Figure 3. Normalized  $V_{th}$  vs.  $T_J$**



**Figure 4. Gate Charge Waveform**

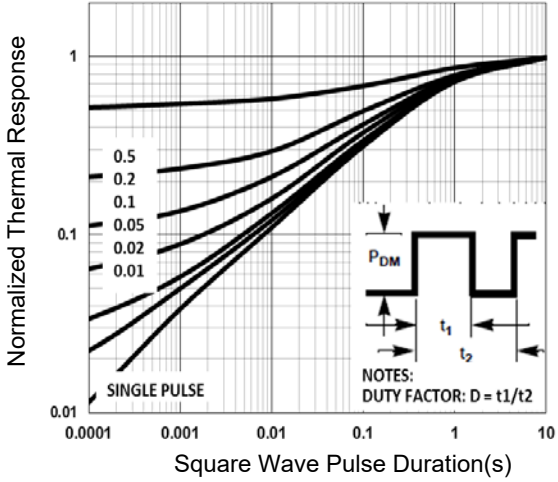


**Figure 5. Transfer Characteristics**

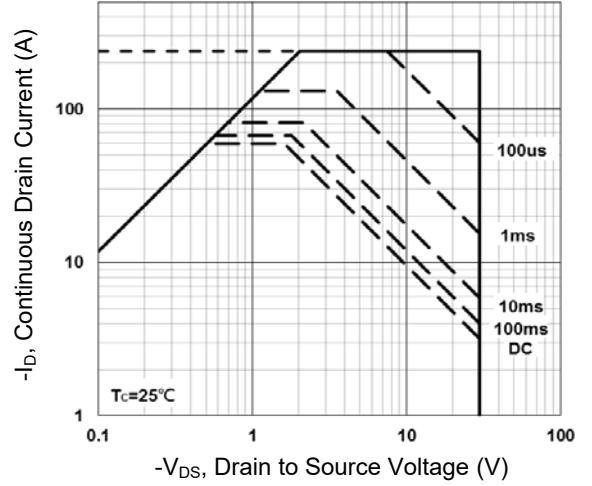


**Figure 6. Typical Output Characteristics**

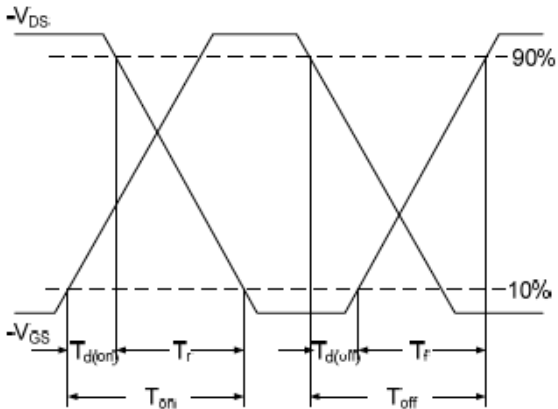
**Typical Electrical and Thermal Characteristic Curves**



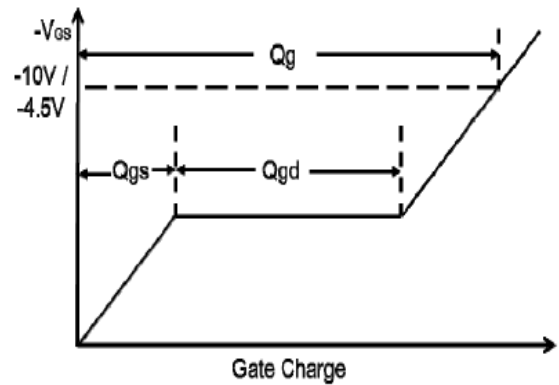
**Figure 7. Normalized Transient Impedance**



**Figure 8. Maximum Safe Operation Area**

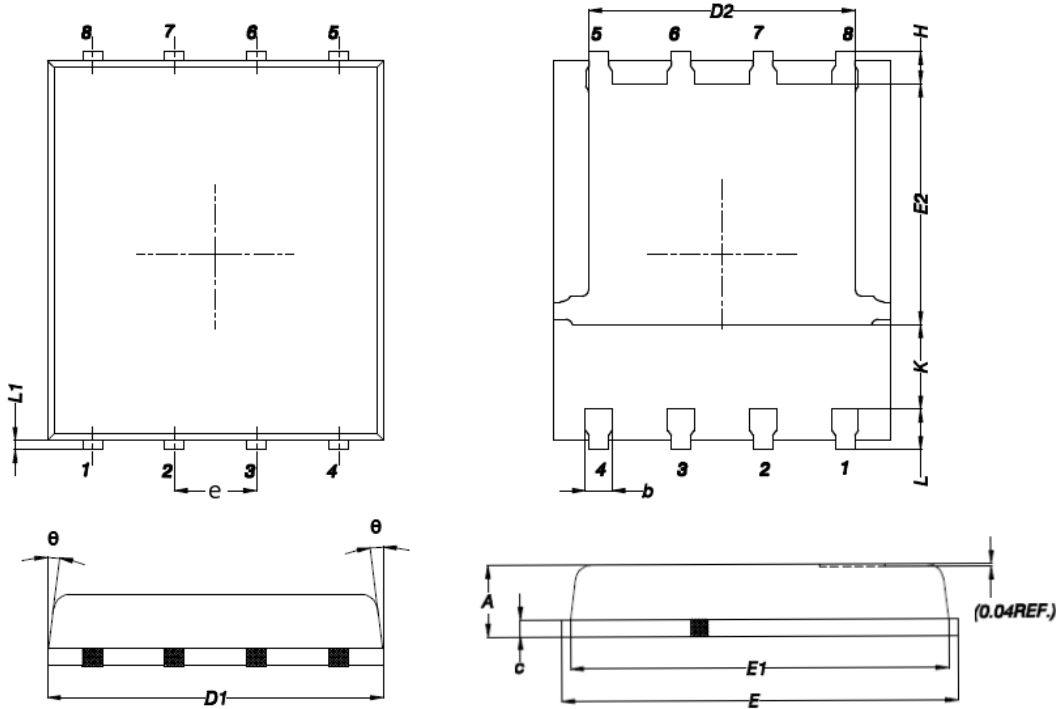


**Figure 9. Switching Time Waveform**



**Figure 10. Gate charge waveform**

**Package Outline Dimensions (PPAK5x6)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.200	0.850	0.047	0.031
b	0.510	0.300	0.020	0.012
C	0.300	0.200	0.012	0.008
D1	5.400	4.800	0.212	0.189
D2	4.310	3.610	0.170	0.142
E	6.300	5.850	0.248	0.230
E1	5.960	5.450	0.235	0.215
E2	3.920	3.300	0.154	0.130
e	1.27BSC		0.05BSC	
H	0.650	0.380	0.026	0.015
K	-	1.100	-	0.043
L	0.710	0.380	0.028	0.015
L1	0.250	0.050	0.009	0.002
θ	12°	0°	12°	0°