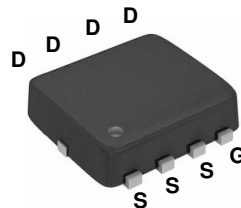
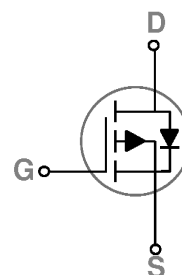


## Main Product Characteristics

$BV_{DSS}$	-30V
$R_{DS(ON)}$	8.2m $\Omega$
$I_D$	-55A



PPAK 3x3



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 GSFN0355 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 ( $T_C=25^\circ\text{C}$ )	$I_D$	-55	A
Drain Current – Continuous ( $T_C=100^\circ\text{C}$ )		-34	A
Drain Current – Pulsed <sup>1</sup>	$I_{DM}$	-220	A
Power Dissipation ( $T_C=25^\circ\text{C}$ )	$P_D$	59	W
Power Dissipation – Derate above 25 $^\circ\text{C}$		0.47	W/ $^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature Range	$T_J$	-55 to +150	$^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Case	$R_{\theta JC}$	2.1	$^\circ\text{C}/\text{W}$


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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	-30	-	-	V
$BV_{DSS}$ Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to $25^\circ\text{C}$ , $I_D=1mA$	-	-0.03	-	$V/^\circ\text{C}$
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V,$ $T_J=25^\circ\text{C}$	-	-	-1	$\mu A$
		$V_{DS}=-24V, V_{GS}=0V,$ $T_J=100^\circ\text{C}$	-	-	-10	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-10A$	-	6.8	8.2	$m\Omega$
		$V_{GS}=-4.5V, I_D=-8A$	-	9.5	12.5	$m\Omega$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1.2	-1.4	-2.5	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$		-	4	-	$mV/^\circ\text{C}$
Forward Transconductance	gfs	$V_{DS}=-10V, I_D=-8A$	-	14	-	S
Total Gate Charge <sup>2,3</sup>	$Q_g$	$V_{DS}=-15V, V_{GS}=-4.5V,$ $I_D=-10A$	-	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>	$T_{d(on)}$	$V_{DD}=-15V, V_{GS}=-10V,$ $R_G=6\Omega, I_D=-1A$	-	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	$C_{iss}$	$V_{DS}=-15V, V_{GS}=0V,$ $F=1MHz$	-	3300	4800	pF
Output Capacitance	$C_{oss}$		-	410	700	
Reverse Transfer Capacitance	$C_{rss}$		-	280	500	
Gate Resistance	$R_g$	$V_{GS}=0V, V_{DS}=0V,$ $F=1MHz$	-	8.5	12	$\Omega$

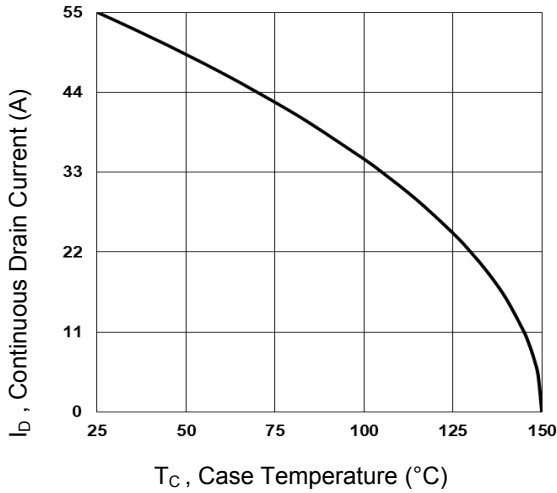
**Source-Drain Ratings and Characteristics**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	$I_S$	$V_G=V_D=0V,$ Force Current	-	-	-55	A
Pulsed Source Current	$I_{SM}$		-	-	-110	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-1A,$ $T_J=25^\circ\text{C}$	-	-	-1	V

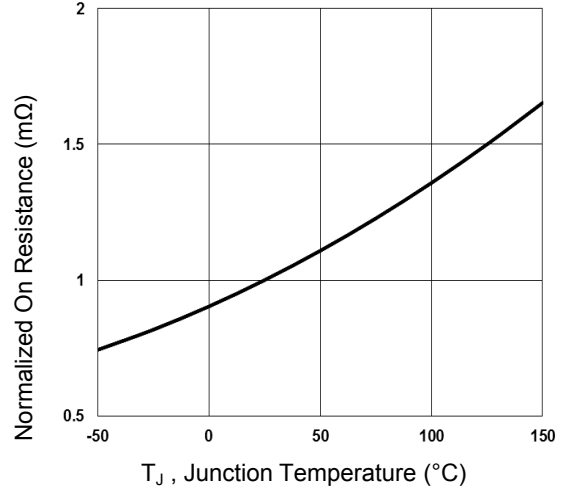
Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width 300us, duty cycle 2%.
3. Essentially independent of operating temperature.

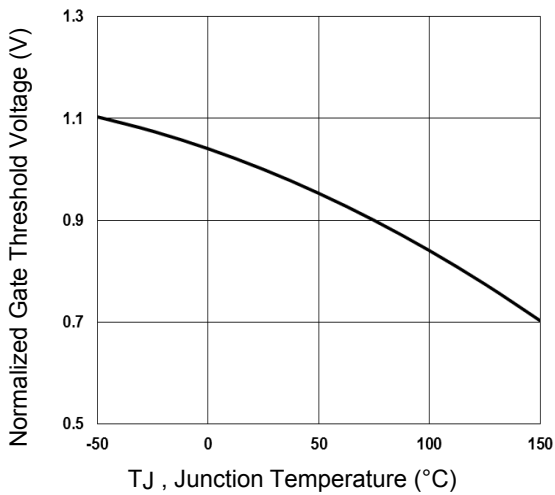
**Typical Electrical and Thermal Characteristic Curves**



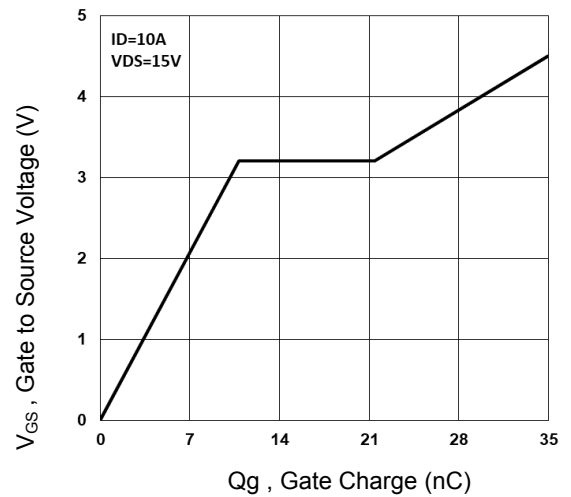
**Figure 1. Continuous Drain Current vs. T<sub>c</sub>**



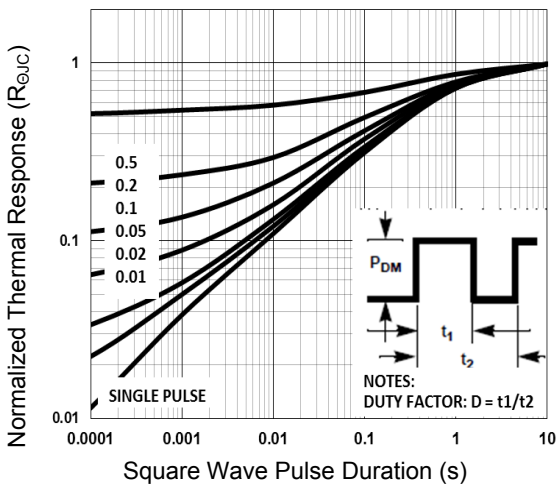
**Figure 2. Normalized RDSON vs. T<sub>J</sub>**



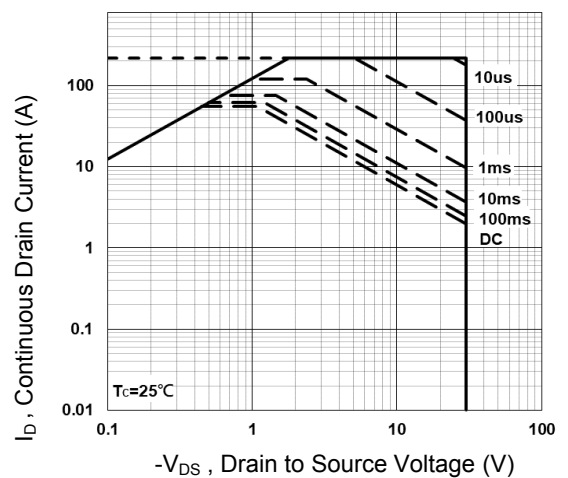
**Figure 3. Normalized V<sub>th</sub> vs. T<sub>J</sub>**



**Figure 4. Gate Charge Waveform**

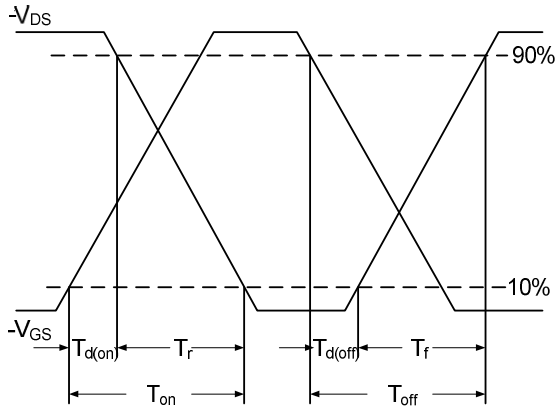


**Figure 5. Normalized Transient Response**

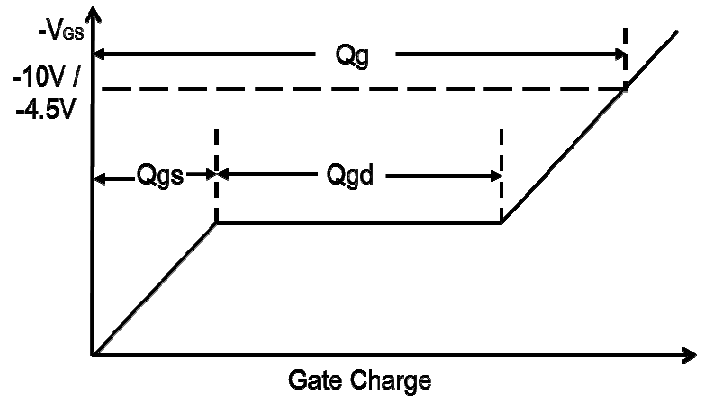


**Figure 6. Maximum Safe Operation Area**

**Typical Electrical and Thermal Characteristic Curves**

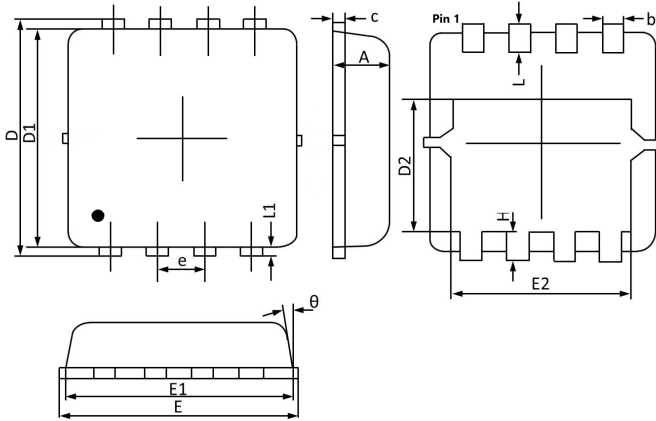


**Figure 7. Switching Time Waveform**



**Figure 8. Gate Charge Waveform**

**Package Outline Dimensions (PPAK 3x3)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	0.900	0.700	0.035	0.028
b	0.350	0.240	0.014	0.009
c	0.250	0.100	0.010	0.004
D	3.450	3.050	0.136	0.120
D1	3.200	2.900	0.126	0.114
D2	1.850	1.350	0.073	0.053
E	3.400	3.000	0.134	0.118
E1	3.250	2.900	0.128	0.114
E2	2.600	2.350	0.102	0.093
e	0.65BSC		0.026BSC	
H	0.500	0.300	0.020	0.012
L	0.500	0.300	0.020	0.012
L1	0.200	0.070	0.008	0.003
θ	12°	0°	12°	0°

**Recommended Pad Layout**

