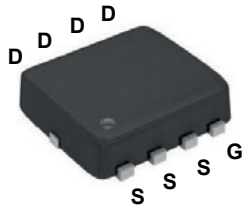
GOOD-ARK SEMICONDUCTOR

GSFN26010

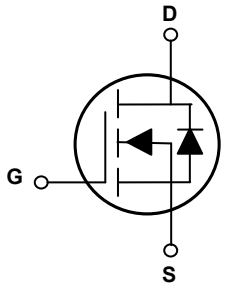
100V N-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	100V
$R_{DS(ON)}$	26mΩ (Max.)
I_D	25A



PPAK3x3



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 GSFN26010 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°C unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-to-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, @ Steady-State (T_C=25°C)[1]	I_D	25	A
Continuous Drain Current, @ Steady-State (T_C=100°C)		19	A
Pulsed Drain Current[2]	I_{DM}	100	A
Power Dissipation (T_C=25°C)	P_D	35	W
Linear Derating Factor (T_C=25°C)		0.28	W/°C
Single Pulse Avalanche Energy[3]	E_{AS}	81	mJ
Junction-to-Case	$R_{\theta Jc}$	3.57	°C/W
Junction-to-Ambient (PCB Mounted, Steady-State)[4]	$R_{\theta JA}$	62.0	°C/W
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	°C

Electrical Characteristics (T_C=25°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=250μA	100	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V	-	-	1	μA
		T_J=125°C	-	-	20	
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=10A	-	21	26	mΩ
		V_{GS}=6V, I_D=7A	-	28	36	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.1	3.0	3.8	V
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=50V F=1MHz	-	1355	-	pF
Output Capacitance	C_{oss}		-	171	-	
Reverse Transfer Capacitance	C_{rss}		-	4	-	
Total Gate Charge	Q_g	I_D=33A, V_{DS}=50V, V_{GS}=10V	-	23	-	nC
Gate-to-Source Charge	Q_{gs}		-	10	-	
Gate-to-Drain ("Miller") Charge	Q_{gd}		-	4.9	-	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=50V, I_D=33A, R_{GEN}=2Ω	-	8.4	-	nS
Rise Time	t_r		-	28.5	-	
Turn-Off Delay Time	$t_{d(off)}$		-	22.4	-	
Fall Time	t_f		-	7.8	-	
Gate Resistance	R_g	F=1MHz	-	2.2	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	45	A
Pulsed Source Current (Body Diode)	I_{SM}		-	-	180	A
Diode Forward Voltage	V_{SD}	I_S=45A, V_{GS}=0V	-	1.0	1.2	V
Reverse Recovery Time	T_{rr}	T_J=25°C, I_F=45A, di/dt=100A/μs	-	56	-	nS
Reverse Recovery Charge	Q_{rr}		-	0.09	-	uc

Notes:

1. Pulse test: pulse width ≤300us, duty cycle ≤2%.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. L=0.5mH, V_{DD}=80V, I_{AS}=18A, R_G=25Ω,T_J=25°C.
4. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Electrical and Thermal Characteristic Curves

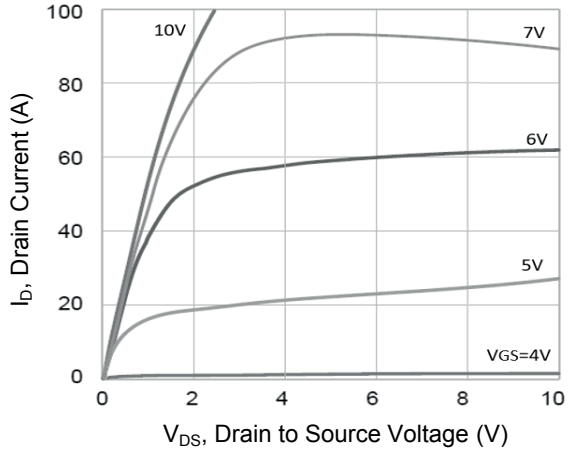


Figure 1. Output Characteristics

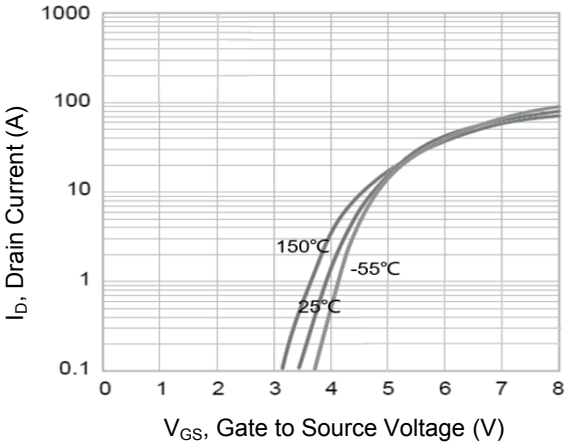


Figure 2. Transfer Characteristics

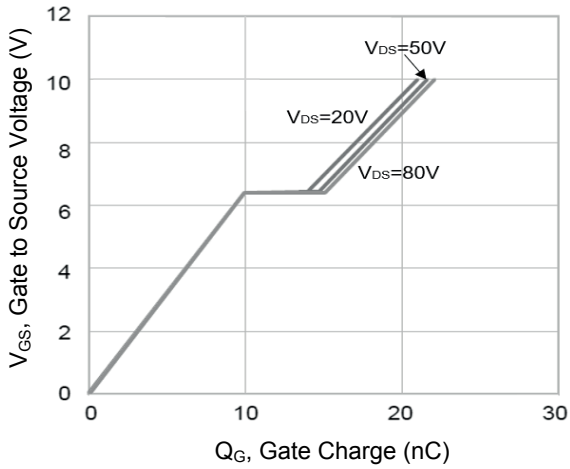


Figure 3. Gate Charge

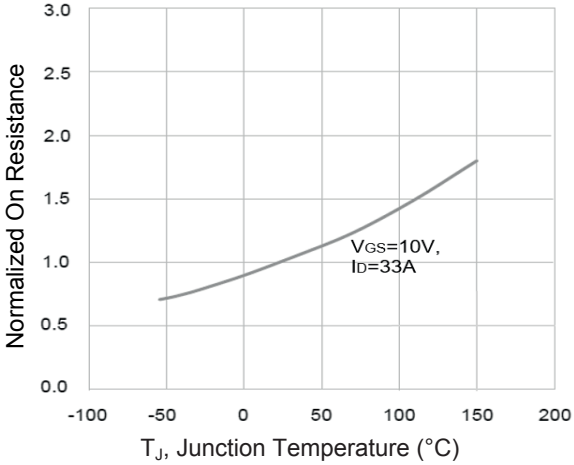


Figure 4. Normalized $R_{DS(ON)}$ Vs. T_J

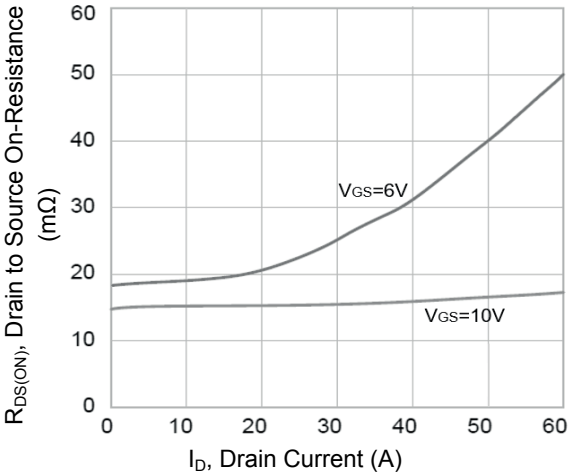


Figure 5. $R_{DS(ON)}$ Vs. Drain Current

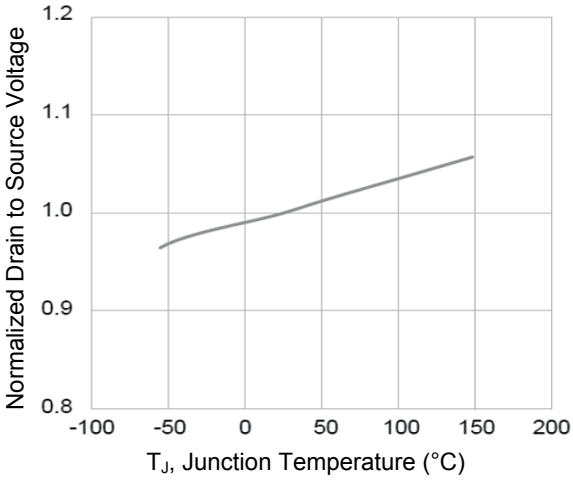


Figure 6. Normalized BV_{DSS} Vs. T_J

Typical Electrical and Thermal Characteristic Curves

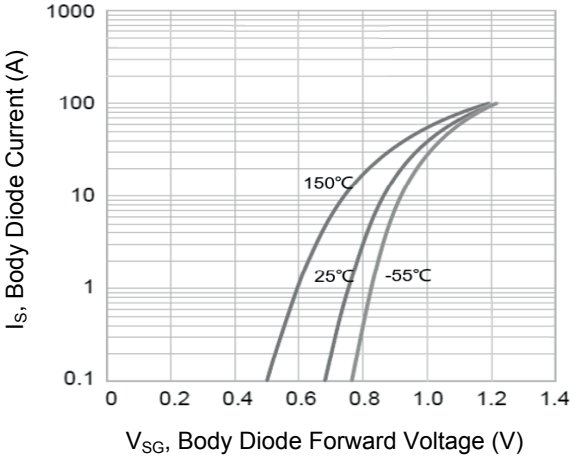


Figure 7. Body Diode Characteristics

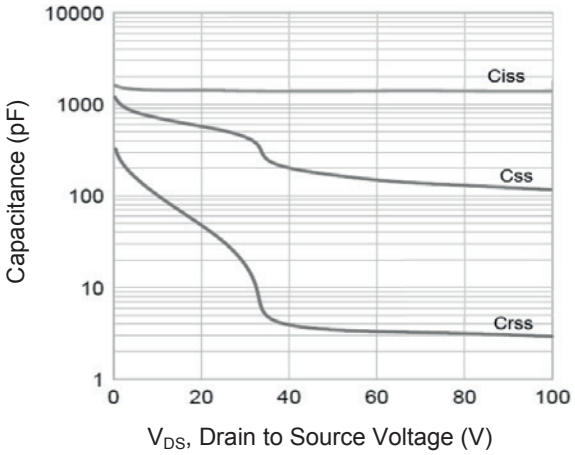


Figure 8. Capacitance Characteristics

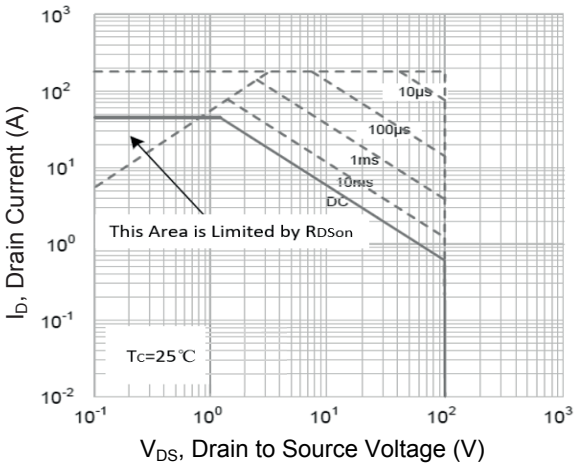
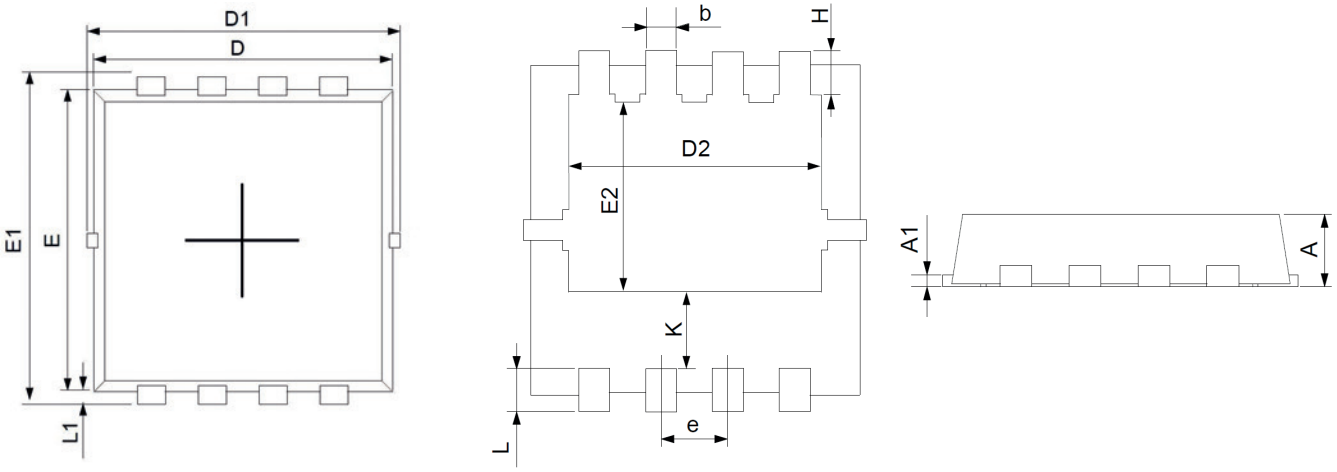


Figure 9. Safe Operation Area

Package Outline Dimensions (PPAK3x3)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.70	0.90	0.028	0.035
A1	0.14	0.20	0.006	0.008
D	3.05	3.25	0.120	0.128
E	2.90	3.10	0.114	0.122
D1	3.10	3.50	0.122	0.138
D2	2.35	2.50	0.093	0.098
E1	3.10	3.50	0.122	0.138
E2	1.64	1.84	0.065	0.072
b	0.25	0.35	0.010	0.014
K	0.59	0.79	0.023	0.031
e	0.55	0.75	0.022	0.030
L	0.25	0.55	0.010	0.022
L1	0.10	0.20	0.004	0.008
H	0.32	0.52	0.013	0.020

Order Information

Device	Package	Marking	Carrier	Quantity
GSFN26010	PPAK3x3	N26010	Tape & Reel	5,000pcs / Reel