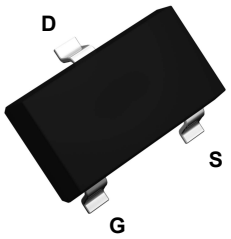
GOOD-ARK
SEMICONDUCTOR

GSFC3010A

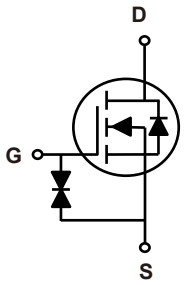
30V N-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	30V
$R_{DS(ON)}$	495mΩ (Max.)
I_D	1.0A



SOT-323



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 GSFC3010A 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_A=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	30	V
Gate-Source Voltage	V_{GS}	±8	V
Drain Current-Continuous (T_A=25°C)	I_D	1.0	A
Drain Current-Continuous (T_A=70°C)		0.8	A
Drain Current-Pulsed (T_A=25°C)[1]	I_{DM}	2.7	A
Power Dissipation (T_A=25°C)	P_D	1.25	W
Power Dissipation (T_A=70°C)		1.0	W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	100	°C/W
Storage Temperature Range	T_{STG}	-50 To +150	°C
Junction Temperature Range	T_J	-50 To +150	°C

Electrical Characteristics (T_J=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On/Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	30	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V T_A = 25°C	-	-	1.0	μA
		V_{DS}=24V, V_{GS}=0V, T_A = 125°C	-	-	100	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V	-	-	±10	μA
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=0.5A	-	390	495	mΩ
		V_{GS}=3.3V, I_D=0.3A		435	535	
		V_{GS}=2.5V, I_D=0.2A	-	500	585	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	0.85	1.1	V
Dynamic and Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=15V,I_D=0.5A, V_{GS}=4.5V	-	2.3	-	nC
Gate-Source Charge	Q_{gs}		-	0.25	-	
Gate-Drain Charge	Q_{gd}		-	0.43	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V, I_D=0.5A, R_G=3.3Ω, V_{GS}=4.5V	-	12	-	nS
Rise Time	t_r		-	6	-	
Turn-Off Delay Time	$t_{d(off)}$		-	13	-	
Fall Time	t_f		-	20	-	
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V, f=1MHz	-	45	-	pF
Output Capacitance	C_{oss}		-	10	-	
Reverse Transfer Capacitance	C_{rss}		-	6.9	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Source Drain Current (Body Diode)	I_{SD}	T_A=25°C	-	-	1.0	A
Forward On Voltage[2]	V_{SD}	T_J=25°C, I_{SD}=0.5A, V_{GS}=0V	-	-	1.2	V

Notes:

1. Pulsed width limited by maximum junction temperature.
2. Pulse test, pulse width ≤ 300uS, duty cycle ≤ 2%.

Typical Electrical and Thermal Characteristic Curves

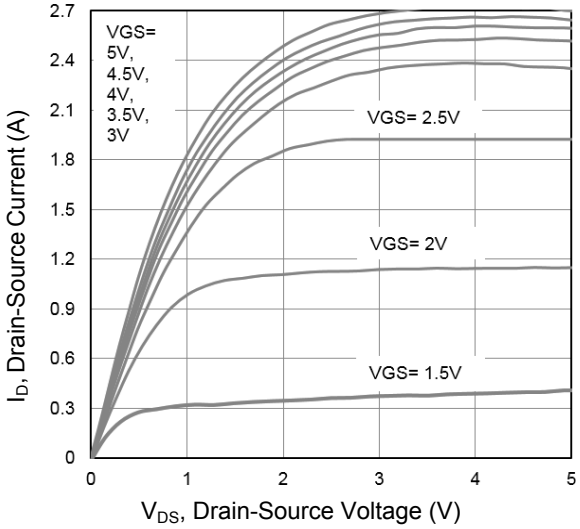


Figure 1. Typical Output Characteristics

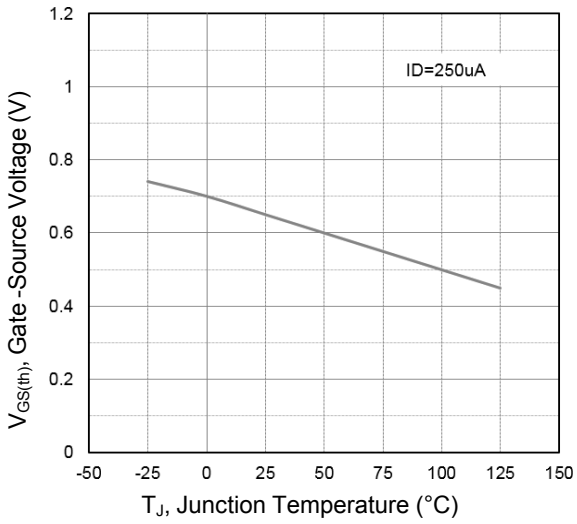


Figure 2. Normalized Threshold Voltage vs. T_J

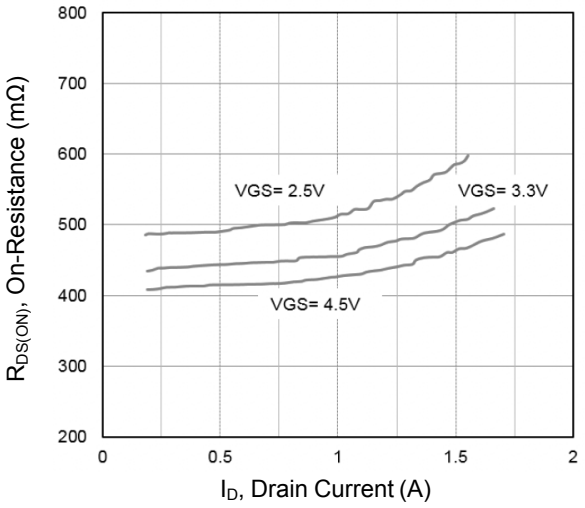


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

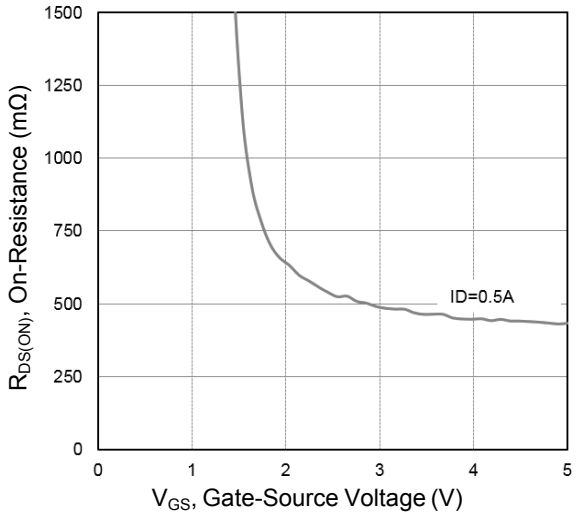


Figure 4. On-Resistance vs. Gate Source Voltage

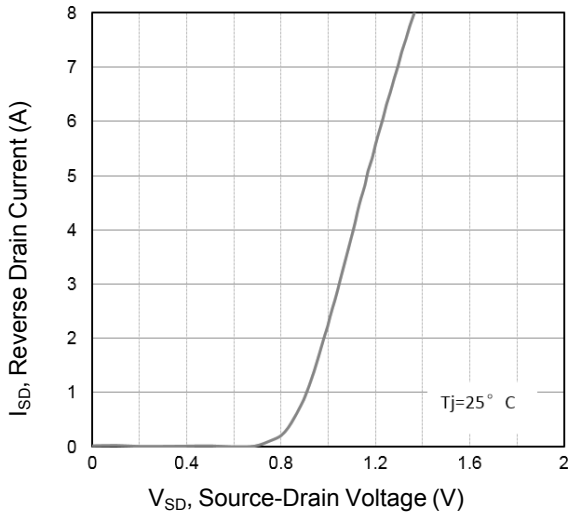


Figure 5. Typical Source-Drain Diode Forward Voltage

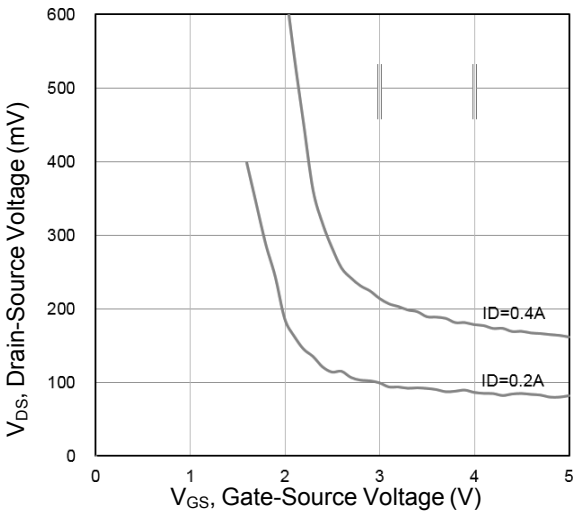


Figure 6. Drain-Source Voltage vs. V_{GS}

Typical Electrical and Thermal Characteristic Curves

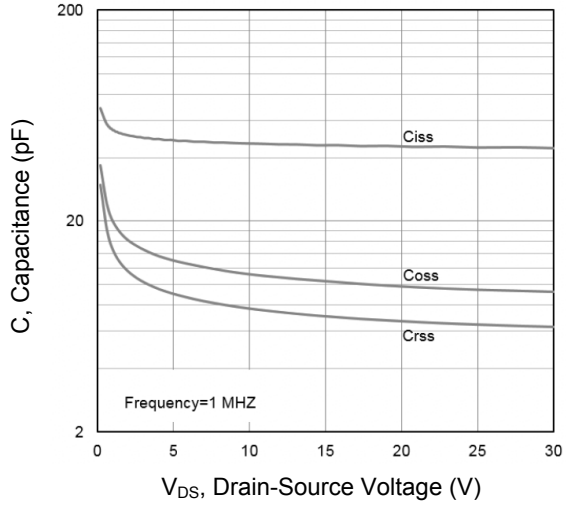


Figure 7. Typical Capacitance vs. V_{DS}

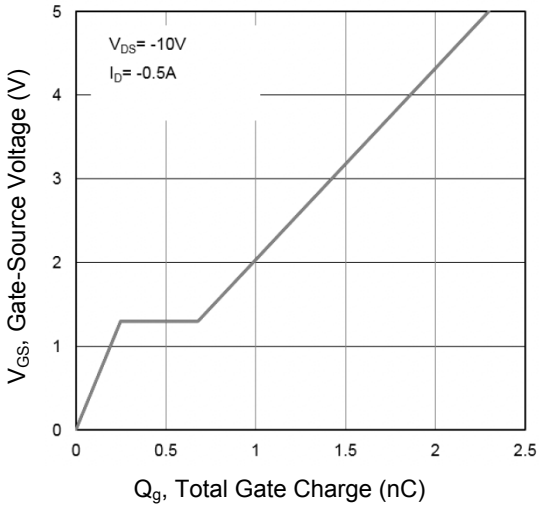


Figure 8. Typical Gate Charge vs. V_{GS}

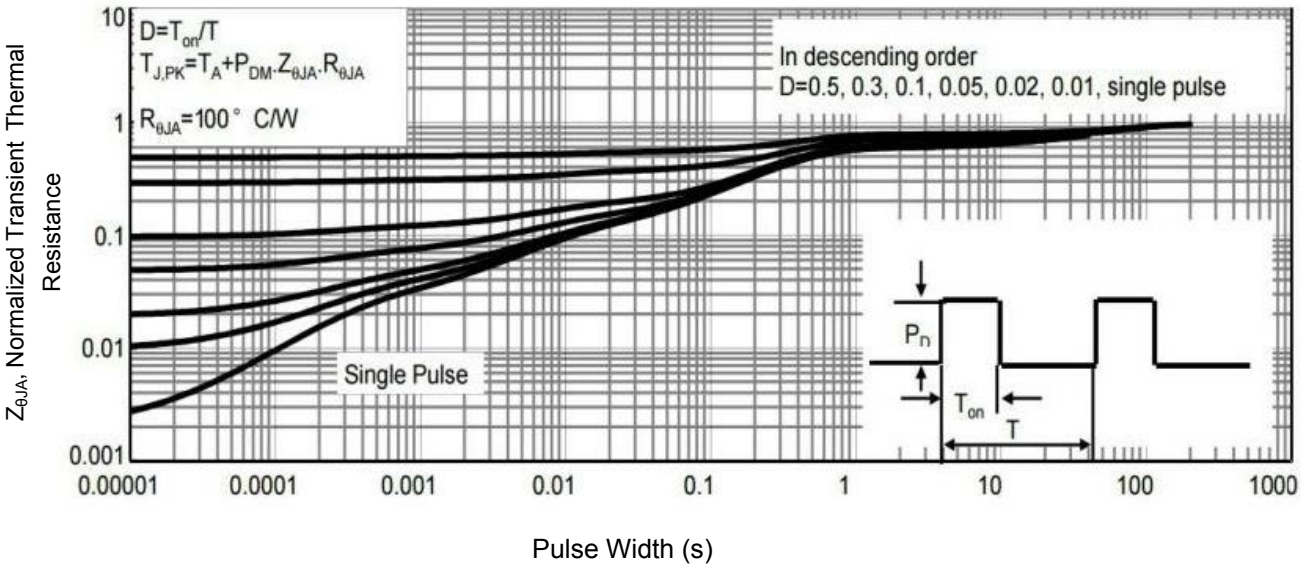
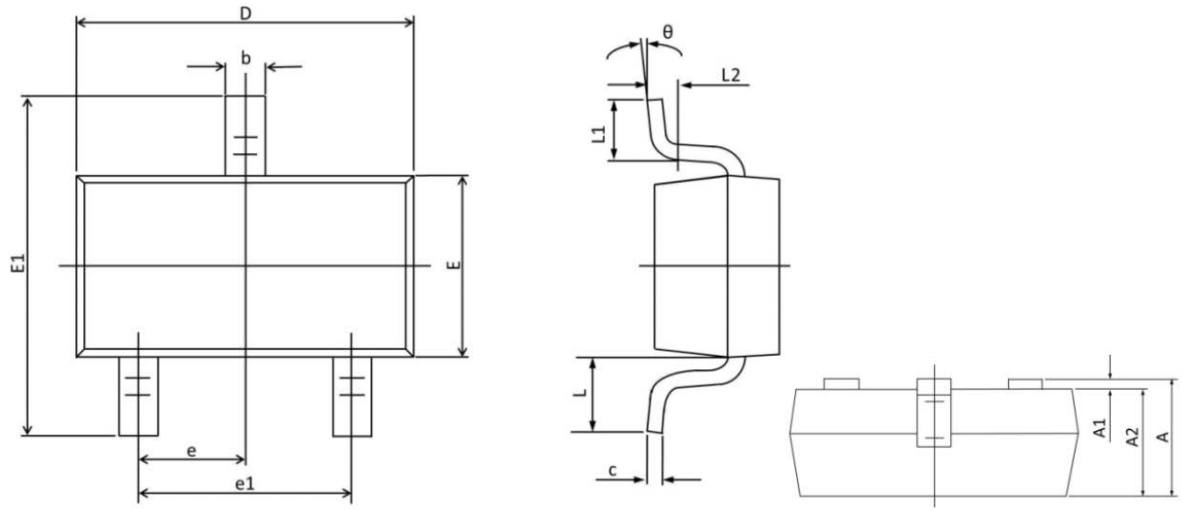


Figure 9. Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions (SOT-323)



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.031	0.043
A1	0.000	0.100	0.000	0.004
A2	0.800	1.000	0.031	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.250	0.003	0.010
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	1.800	2.450	0.071	0.096
e	0.650 BSC		0.026 BSC	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.150	0.460	0.006	0.018
L2	0.000	0.200	0.000	0.008
θ	0°	8°	0°	8°

Order Information

Device	Package	Marking	Carrier	Quantity
GSFC3010A	SOT-323	3010	Tape & Reel	3,000 Pcs / Reel