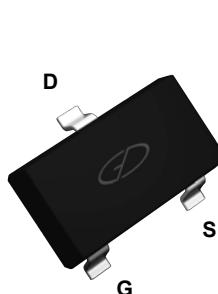
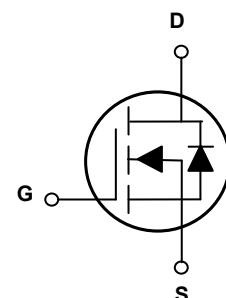


Main Product Characteristics

BV_{DSS}	30V
$R_{DS(ON)}$	80m Ω @10V (Typ)
	110m Ω @4.5V (Typ)
I_D	2.5A



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 GSFC3001 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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 16	V
Drain Current-Continuous ($T_A=25^\circ\text{C}$)	I_D	2.5	A
Drain Current-Continuous ($T_A=70^\circ\text{C}$)		2.0	
Drain Current-Pulsed ($T_A=25^\circ\text{C}$) ¹	I_{DM}	14	A
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.56	W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	80	$^\circ\text{C}/\text{W}$
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
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}}=0\text{V}, I_D=250\mu\text{A}$	30	-	-	V
Zero Gate Voltage Drain Current, $T_A=25^\circ\text{C}$	I_{DSS}	$V_{\text{DS}}=30\text{V}, V_{\text{GS}}=0\text{V}$	-	-	1	μA
Zero Gate Voltage Drain Current, $T_A=125^\circ\text{C}$		$V_{\text{DS}}=24\text{V}, V_{\text{GS}}=0\text{V}$	-	-	100	μA
Gate-Source Leakage Current	I_{GSS}	$V_{\text{GS}}=\pm 16\text{V}, V_{\text{DS}}=0\text{V}$	-	-	± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{GS}}=V_{\text{DS}}, I_D=250\mu\text{A}$	0.8	1.4	2.0	V
Drain-Source On-State Resistance ²	$R_{\text{DS}(\text{ON})}$	$V_{\text{GS}}=10\text{V}, I_D=3\text{A}$	-	80	100	$\text{m}\Omega$
		$V_{\text{GS}}=4.5\text{V}, I_D=2\text{A}$	-	110	140	$\text{m}\Omega$
Dynamic and Switching Characteristics						
Total Gate Charge	Q_g	$V_{\text{DS}}=15\text{V}, V_{\text{GS}}=10\text{V}, I_D=2\text{A}$	-	2.7	-	nC
Gate-Source Charge	Q_{gs}		-	0.35	-	
Gate-Drain Charge	Q_{gd}		-	0.65	-	
Turn-On Delay Time	$T_{\text{d(on)}}$	$V_{\text{DD}}=15\text{V}, V_{\text{GS}}=10\text{V}, R_G=3.3\Omega, I_D=2\text{A}$	-	4.5	-	nS
Rise Time	T_r		-	6.4	-	
Turn-Off Delay Time	$T_{\text{d(off)}}$		-	19	-	
Fall Time	T_f		-	3.6	-	
Input Capacitance	C_{iss}	$V_{\text{DS}}=15\text{V}, V_{\text{GS}}=0\text{V}, F=1\text{MHz}$	-	66	-	pF
Output Capacitance	C_{oss}		-	14	-	
Reverse Transfer Capacitance	C_{rss}		-	10	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Source Drain Current (Body Diode)	I_{SD}	$T_A=25^\circ\text{C}$	-	-	2	A
Diode Forward Voltage ²	V_{SD}	$V_{\text{GS}}=0\text{V}, I_{\text{SD}}=2\text{A}, T_J=25^\circ\text{C}$	-	0.84	1.2	V

Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. Pulse test: pulse width $\leq 300\text{us}$, duty cycle $\leq 2\%$.

Typical Electrical and Thermal Characteristic Curves

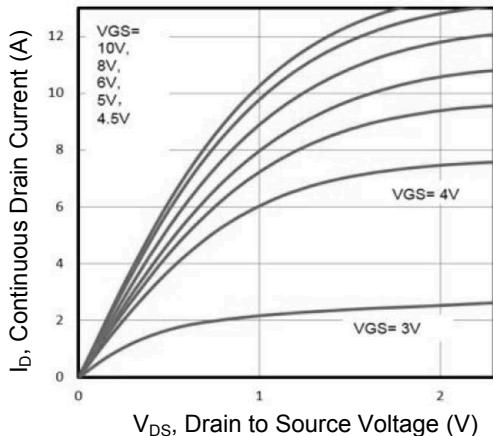


Figure 1. Typical Output Characteristics

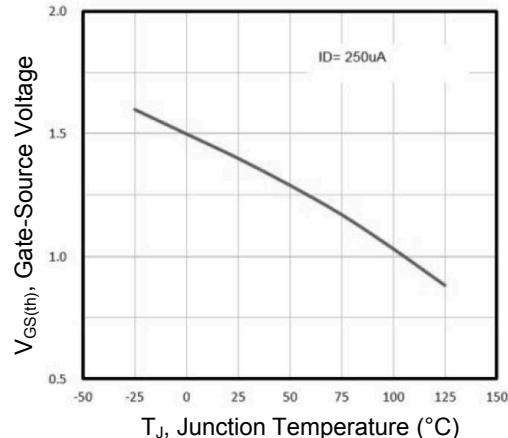


Figure 2. Normalized Threshold Voltage vs. T_J

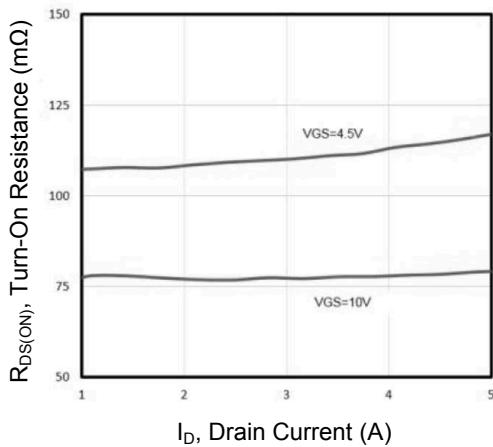


Figure 3. Turn-On Resistance vs. I_D

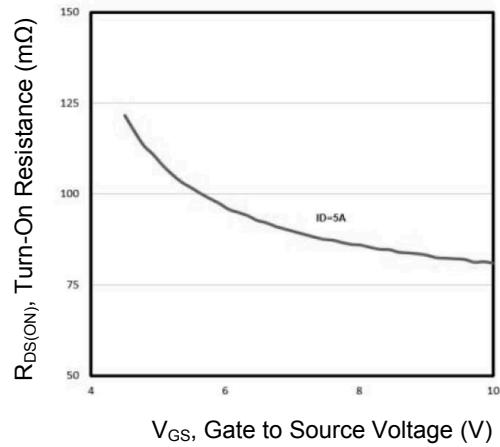


Figure 4. Typical Transfer Characteristics

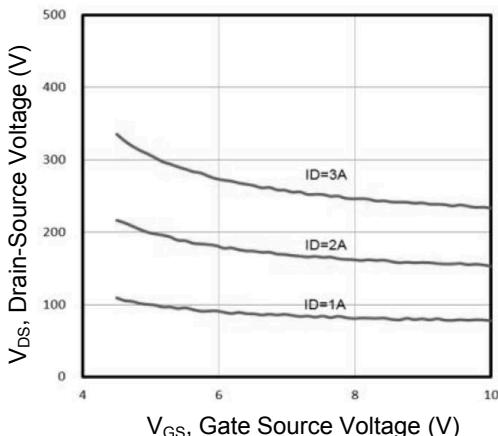


Figure 5. Drain-Source Voltage vs. Gate-Source Voltage

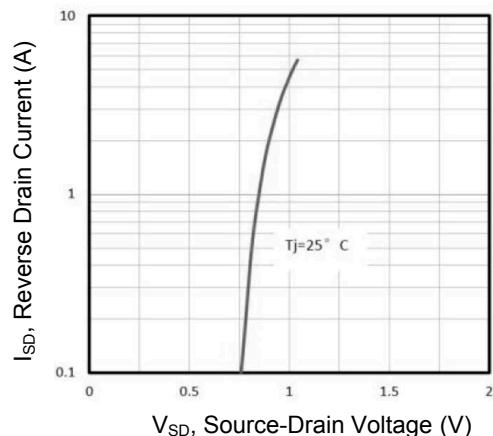


Figure 6. Typical Source-Drain Diode Forward Voltage

Typical Electrical and Thermal Characteristic Curves

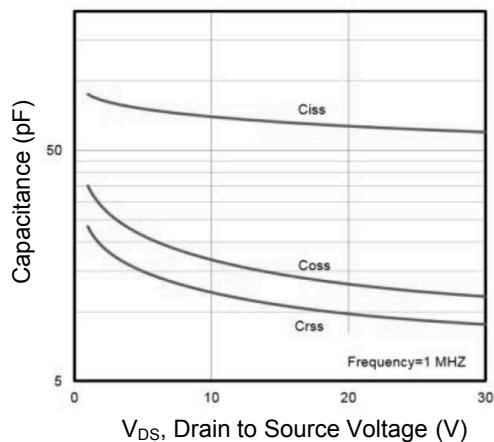


Figure 7. Typical Capacitance vs. Drain-Source Voltage

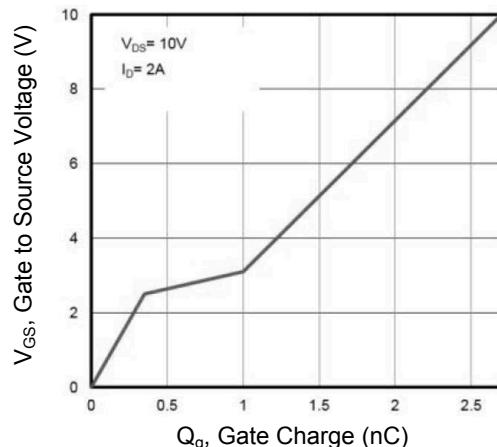
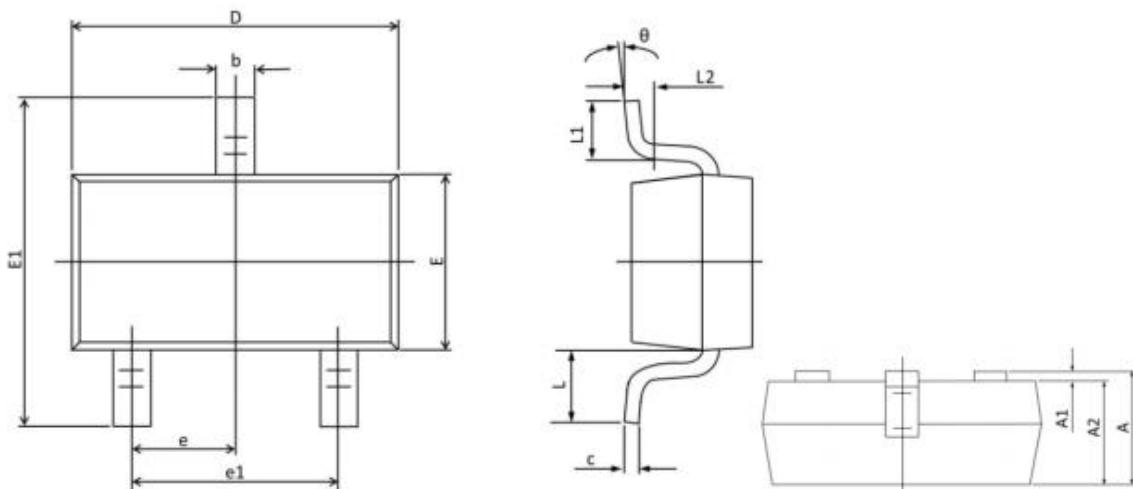


Figure 8. Typical Gate Charge vs. Gate-Source Voltage

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
GSFC3001	SOT-323	3001	Tape & Reel	3,000 pcs / Reel