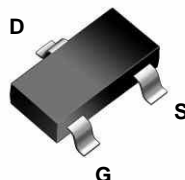
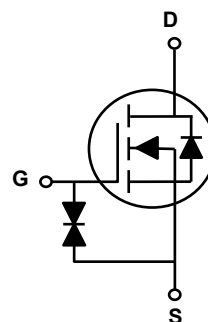


Main Product Characteristics

BV_{DSS}	50V
$R_{DS(ON)}$	1.6Ω
I_D	360mA



SOT-523



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 GSF0500AT 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 ($T_A=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous ($T_C=25^{\circ}C$)	I_D	360	mA
Power Dissipation ($T_C=25^{\circ}C$)	P_D	0.15	W
Thermal Resistance, Junction-to-Ambient ¹	$R_{\theta JA}$	834	°C/W
Thermal Resistance Junction-to-Lead ¹	$R_{\theta JL}$	500	°C/W
Thermal Resistance, Junction-to-Case ¹	$R_{\theta JC}$	421	°C/W
Operating Junction Temperature Range	T_J	-55 To +150	°C
Storage Temperature Range	T_{STG}	-55 To +150	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On/Off Characteristics²						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	50	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=50V, V_{GS}=0V$	-	-	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 10	μA
Static Drain-Source On-Resistance ²	$R_{DS(ON)}$	$V_{GS}=10V, I_D=0.5A$	-	-	1.6	Ω
		$V_{GS}=4.5V, I_D=0.2A$	-	-	2.5	
		$V_{GS}=2.5V, I_D=0.1A$	-	-	4.5	
Gate Threshold Voltage ²	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	0.8	-	1.3	V
Dynamic and Switching Characteristics³						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, F=1\text{mHz}$	-	27	-	pF
Output Capacitance	C_{oss}		-	13	-	
Reverse Transfer Capacitance	C_{rss}		-	6	-	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=30V, V_{GS}=10V, I_D=0.29A, R_G=6\Omega$	-	-	5	ns
Rise Time	T_r		-	-	18	
Turn-Off Delay Time	$T_{d(off)}$		-	-	36	
Fall Time	T_f		-	-	14	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current ¹	I_S	$T_C=25^{\circ}\text{C}$	-	-	0.36	A
Diode Forward Voltage ¹	V_{SD}	$V_{GS}=0V, I_S=0.5A$	-	-	1.4	V

Note:

1. Surface Mounted on FR4 Board, $t \leq 10$ sec .
2. Pulsed test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Guaranteed by design.

Typical Electrical and Thermal Characteristic Curves

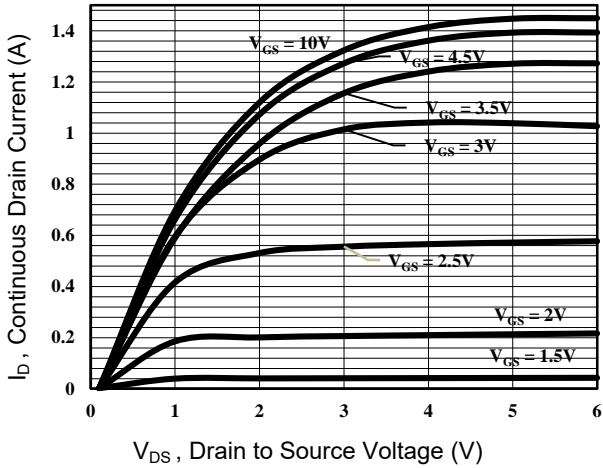


Figure 1. Output Characteristics

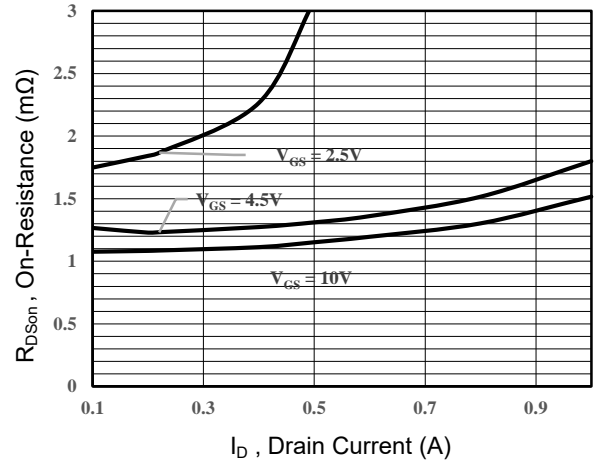


Figure 2. On Resistance vs. I_D

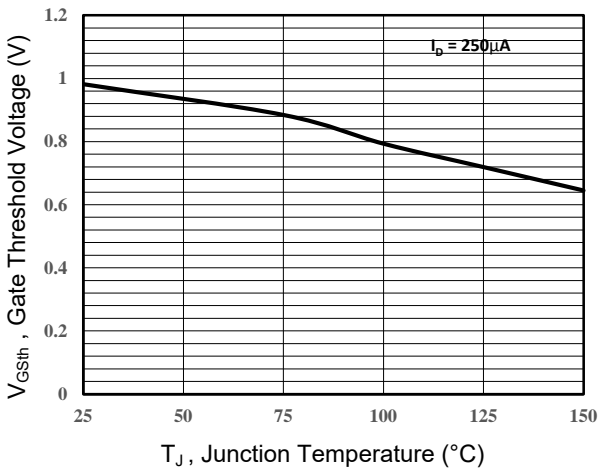


Figure 3. Gate Threshold Voltage $V_{GS(th)}$ vs. T_J

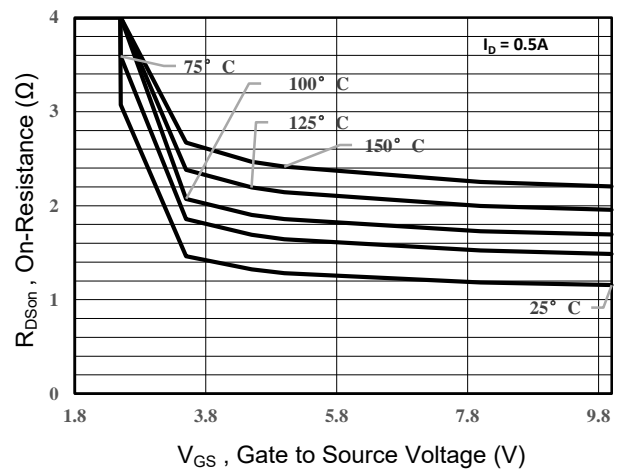


Figure 4. On Resistance vs. V_{GS}

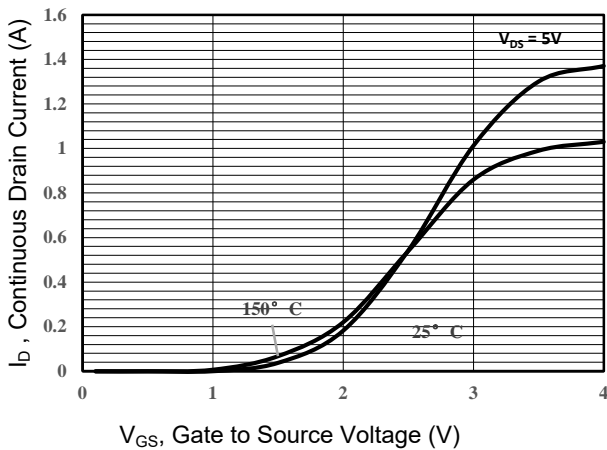


Figure 5. Transfer Characteristics

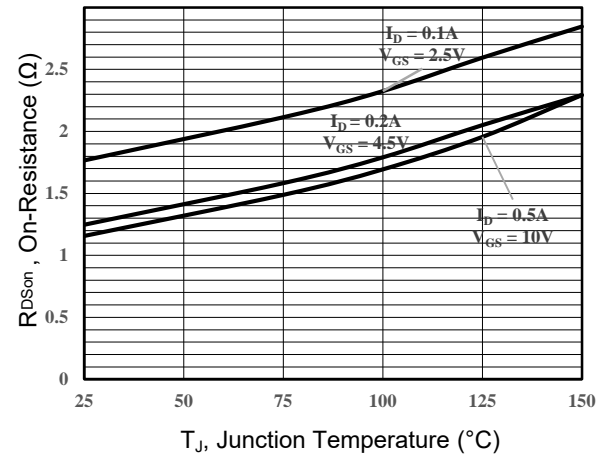


Figure 6. On Resistance vs. T_J

Typical Electrical and Thermal Characteristic Curves

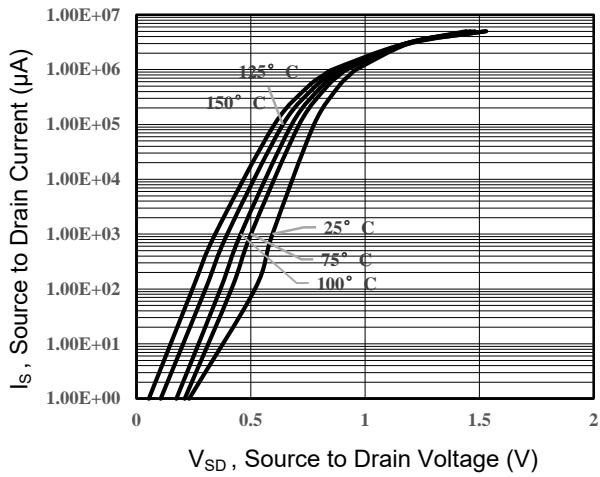


Figure 7. Body Diode Characteristics

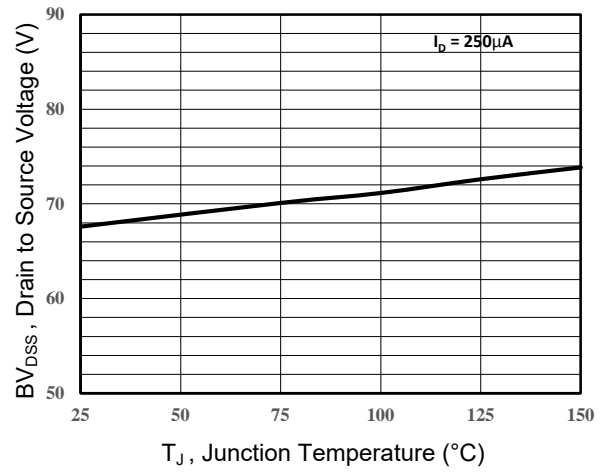
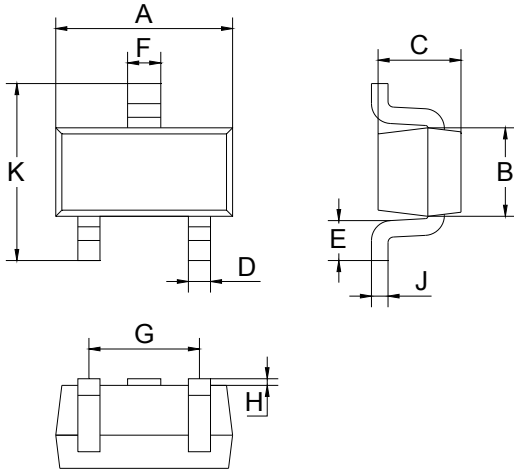


Figure 8. BV_{DSS} vs. T_J

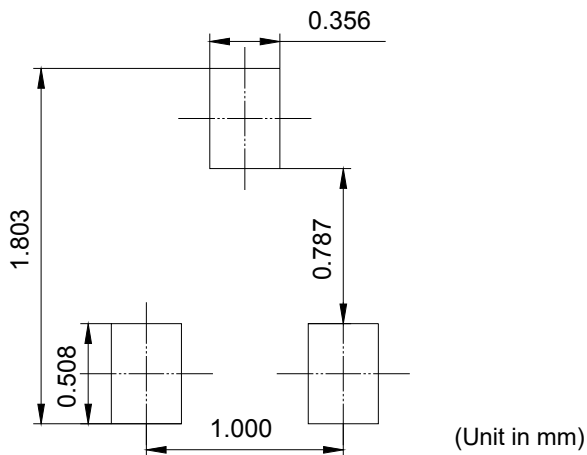
Package Outline Dimensions

SOT-523



SOT-523 (Unit: mm)		
Dimension	Min.	Max.
A	1.50	1.70
B	0.75	0.85
C	0.60	0.80
D	0.15	0.30
E	0.30	0.40
F	0.25	0.40
G	0.90	1.10
H	0.02	0.10
J	0.08	0.18
K	1.45	1.75

Recommended Pad Layout



Order Information

Device	Package	Marking Code	Carrier	Quantity	HSF Status
GSF0500AT	SOT-523	MM5	Tape & Reel	3,000/Reel	RoHS Compliant