20V　N-MOS

● **Features**

$R_{DS(ON)}$<360mΩ @V_{GS}=4.5V
$R_{DS(ON)}$<420mΩ @V_{GS}=2.5V
$R_{DS(ON)}$<560mΩ @V_{GS}=1.8V
Low Offset (Error) Voltage
Low-Voltage Operation
High-Speed Circuits
Low Battery Voltage Operation
SOT-723 package design

● **APPLICATIONS**

Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
Battery Operated Systems
Power Supply Converter Circuits
Load/Power Switching Smart Phones, Pagers

● **General Description**

FS7072, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

● **Pin Configurations**
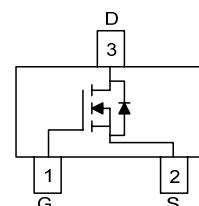
SOT-723　　　　**Pin configuration（Top view）**

● **Absolute Maximum Ratings @**T_A=25℃　unless otherwise noted

Parameter	Symbol	Ratings	Unit
Drain - Source Voltage	V_{DSS}	20	V
Gate –Source Voltage	V_{GS}	±12	V
Drain Current (Continuous)	I_D	0.70	A
Drain Current (Pulse)	I_{DP}	1.0	A
Power Dissipation	P_D	0.27	W
Operating Temperature	T_J	-55~150	℃
Storage Temperature	T_{STG}	-55~150	℃

FS7072

- **Electrical Characteristics** @T_A=25℃ unless otherwise noted

| Symbol	Parameter	Limit	Min	Typ	Max	Unit
		STATIC				
BV$_{DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D= 250 μA	20			V
V$_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D= 250 μA	0.4		1.0	
I$_{GSS}$	Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V			±0.1	μA
I$_{DSS}$	Zero Gate Voltage Drain Current	V_{DS}= 20V, V_{GS}=0V			1	
R$_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}= 4.5V, I_D= 0.8A		300	360	mΩ
		V_{GS}= 2.5V, I_D= 0.7A		340	420	
		V_{GS}= 1.8V, I_D= 0.6A		420	560	
G$_{FS}$	Forward Transconductance	V_{DS}= 10V, I_D= 0.4A		1.0		S
V$_{SD}$	Diode Forward Voltage	I_S= 0.15A, V_{GS}=0V		0.65	1.2	V
		DYNAMIC				
Q$_{g(TOT)}$	Total Gate Charge	V_{DS}= 10V, V_{GS}= 4.5V, I_D= 0.6A		1.06		nC
Q$_{gs}$	Gate-Source Charge			0.18		
Q$_{gd}$	Gate-Drain Charge			0.32		
C$_{iss}$	Input Capacitance	V_{DS}= 10V, V_{GS}= 0V, f=1MHz		70		pF
C$_{oss}$	Output Capacitance			20		
C$_{rss}$	Reverse Transfer Capacitance			8		
t$_{d(on)}$	Turn-On Delay Time	V_{DS}= 10V, R$_G$ =1Ω I_D=0.5A, V_{GS}= 4.5V,RL=20Ω		18	26	ns
t$_r$	Rise Time			20	28	
t$_{d(off)}$	Turn-Off Delay Time			70	110	
t$_f$	Fall Time			25	40	

Notes:

1. Pulse width limited by maximum junction temperature. Pulse test: PW≤300μs, duty cycle≤2%.

2. For design AID only, not subject to production testing. Switching time is essentially independent of operating temperature.

- **Typical Performance Characteristics**

Output Characteristics

Transfer Characteristics

On-Resistance vs. Drain Current

Capacitance

Gate Charge

On-Resistance vs. Junction Temperature
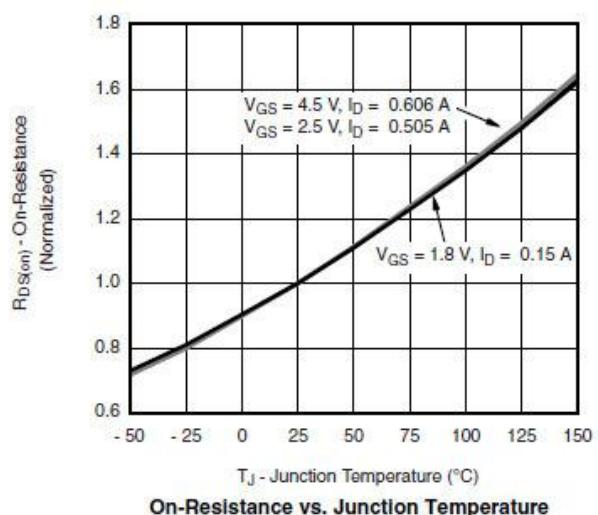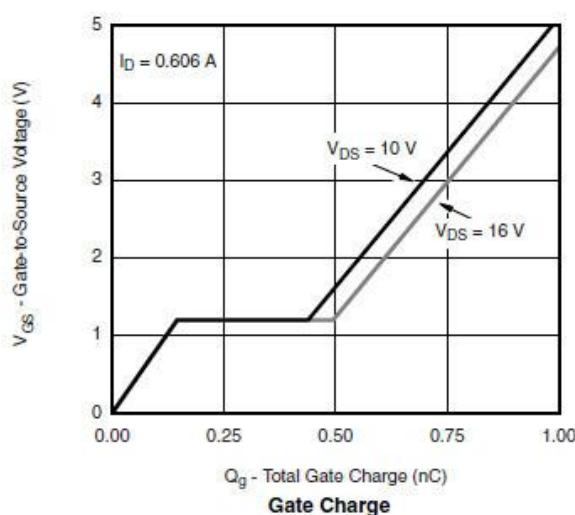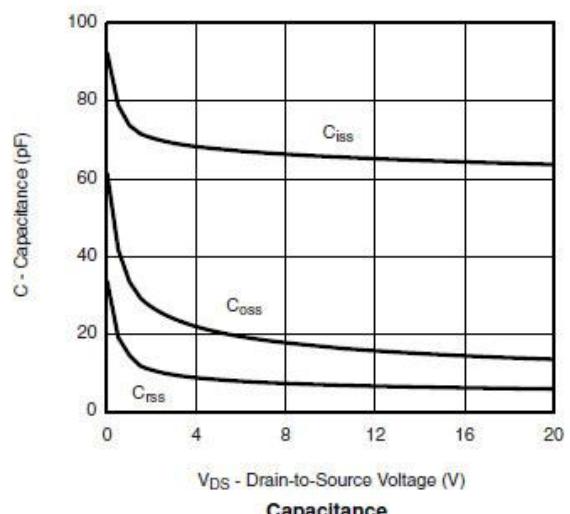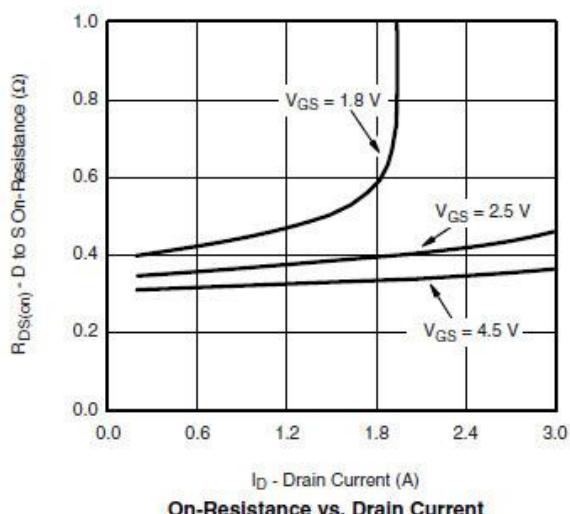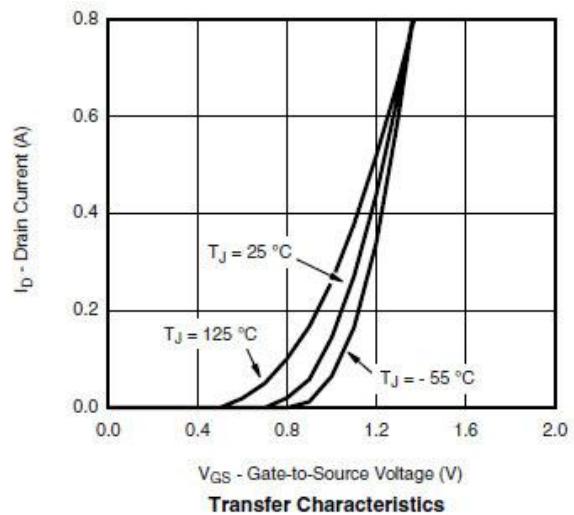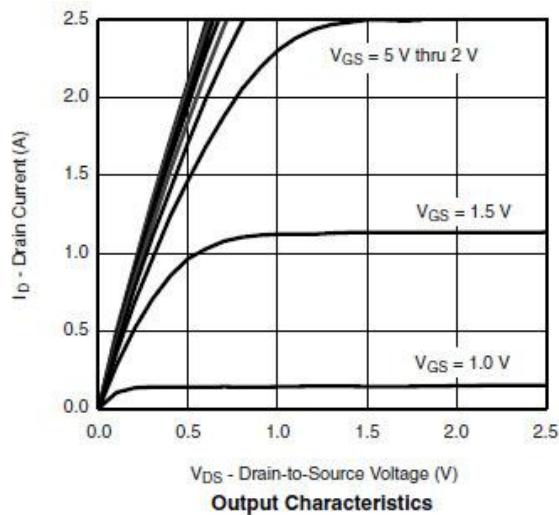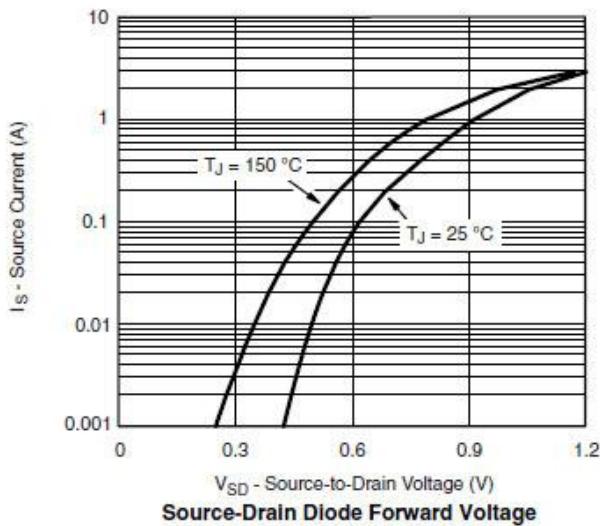
Source-Drain Diode Forward Voltage
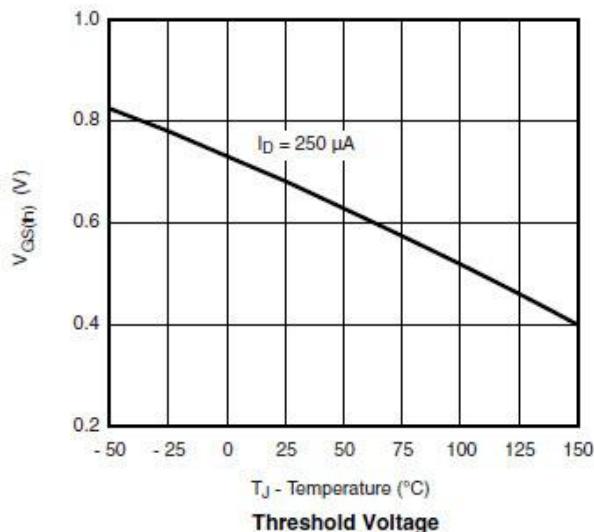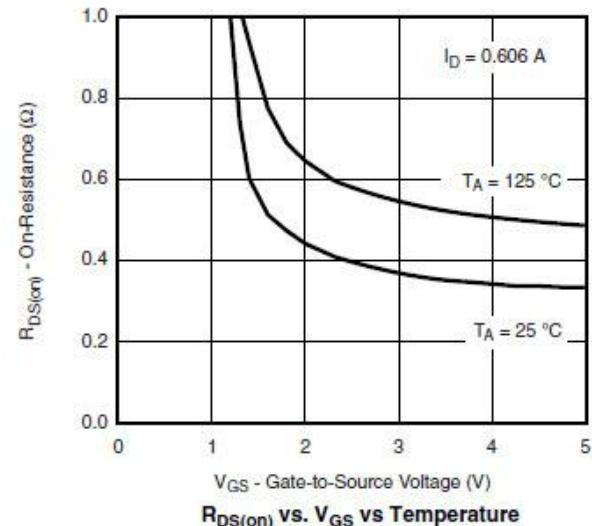
$R_{DS(on)}$ vs. V_{GS} vs Temperature

Threshold Voltage
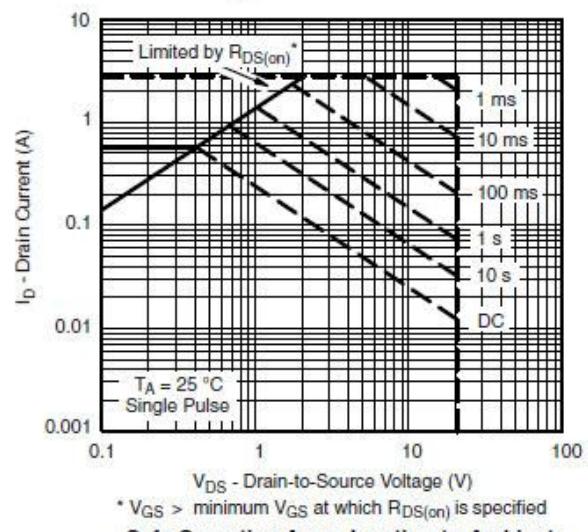
* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

Notes:

1. Duty Cycle, $D = \dfrac{t_1}{t_2}$
2. Per Unit Base = R_{thJA} = 540 °C/W
3. $T_{JM} - T_A = P_{DM}Z_{thJA}(t)$
4. Surface Mounted
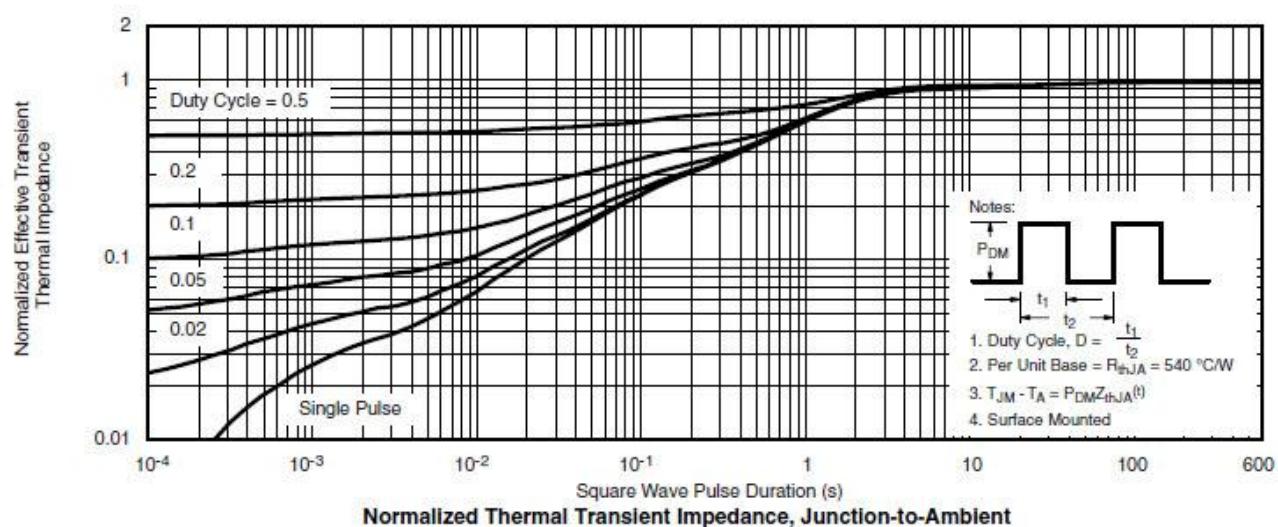
Normalized Thermal Transient Impedance, Junction-to-Ambient

- **Package Information (SOT-723)**
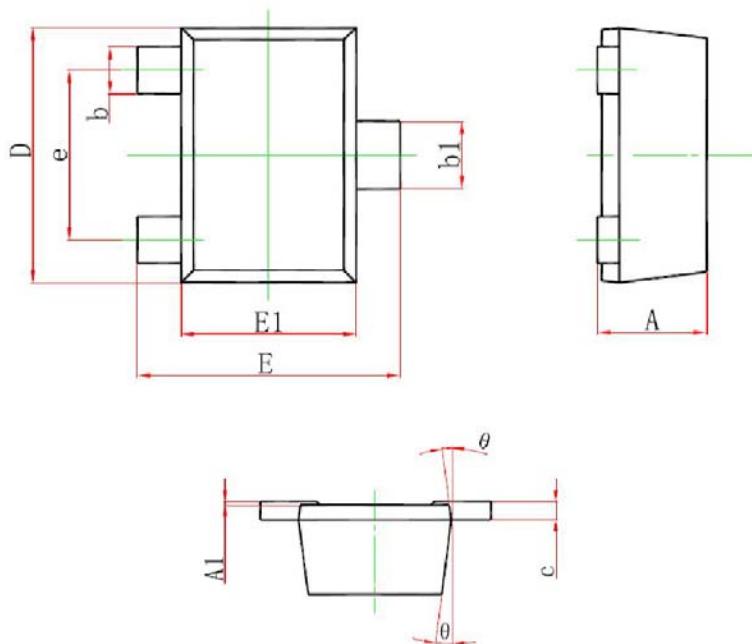
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A		0.500		0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c		0.150		0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	