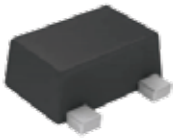
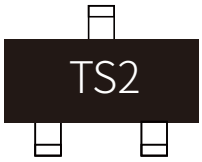
FEATURES

- High Density Cell Design For Low $R_{DS(On)}$
- Voltage Controlled Small Signal Switch
- Rugged and Reliable
- High Saturation Current Capability
- Lead free product is acquired



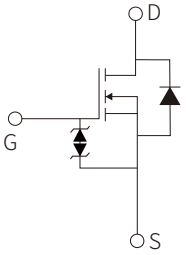
SOT-723



Marking

APPLICATION

- Direct logic-level interface: TTL/CMOS
- Drivers: relays, solenoids, lamps
- hammers,display, memories, etc.
- Battery operated systems
- Solid-state relays



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±12	V
Continuous Drain Current	T_A=25°C	I_D	0.5	A
	T_A=100°C		0.3	A
Pulsed Drain Current (Note 2)		I_{DM}	2	A
Total Power Dissipation(Note 3)		P_D	266	mW
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-50- +150	°C
Thermal Resistance from Junction to Ambient (Note 1)		$R_{\theta JA}$	470	°C/W

Note:
2.The value of $R_{\theta JA}$ is measured with the device mounted on $1in^2$ FR-4 board with 2oz.Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=10μA	30			V
Gate-source leakage [a]	I_{GSS}	V_{DS}=0V, V_{GS}=±12V			±10	μA
Zero gate voltage drain current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	1.0	1.5	V
Drain-source on–state resistance	$R_{DS(on)}$	V_{GS}=10V, I_{DS}=0.5A		350	600	mΩ
		V_{GS}=4.5V, I_{DS}=0.4A		400	650	mΩ
		V_{GS}=2.5V, I_{DS}=0.3A		700	1000	mΩ
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		13.9		pF
Output capacitance	C_{oss}			6		pF
Reverse transfer capacitance	C_{rss}			1.8		pF
Total gate charge	Q_g	V_{DS}=15V,V_{GS}=10V,I_D=0.5A		0.8		nC
Gate-source charge	Q_{gs}			0.2		nC
Gate-drain charge	Q_{gd}			0.1		nC
Turn–on delay time	$t_{d(on)}$	V_{DD}=15V, V_{GS}=10V, I_D=0.5A, R_G=6Ω		2.2		ns
Rise Time	t_r			2.9		ns
Turn–Off Delay Time	$t_{d(off)}$			7		ns
Fall yime	t_f			7.3		ns
Diode Characteristics						
Continuous Body Diode Current	I_S				0.5	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_{SD}=0.3A		0.8	1.3	V
Reverse Recovery Time	t_{rr}	I_F=0.5A, dI_F/dt=100A/μs		8.6		ns
Reverse Recovery Charge	Q_{rr}			1.6		nC

CHARACTERISTIC CURVES

Fig.1 Typical Output Characteristics

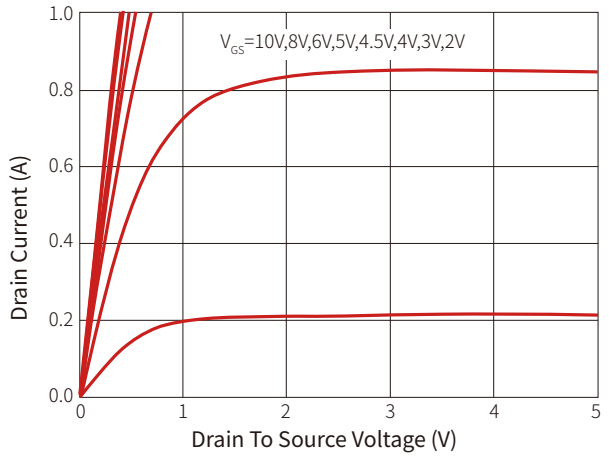


Fig.2 Transfer Characteristics

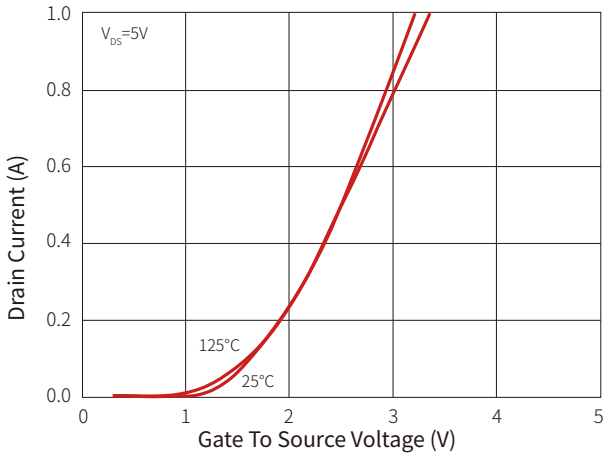


Fig.3 $R_{DS(ON)}$ ——— V_{GS}

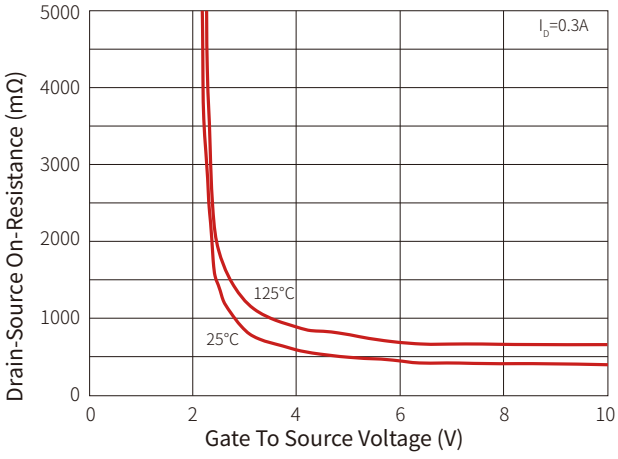


Fig.4 $R_{DS(ON)}$ ——— I_D

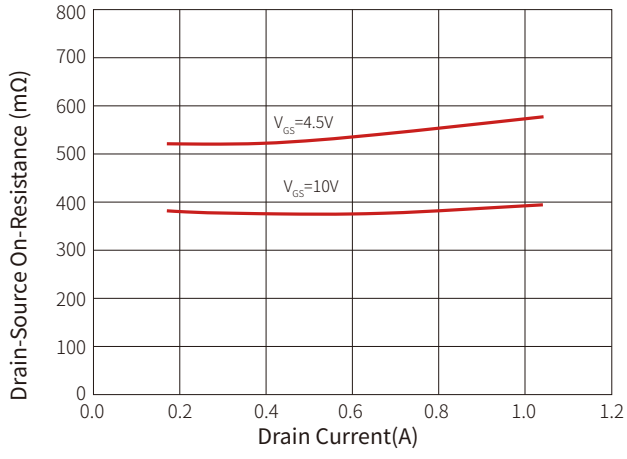


Fig.5 Capacitance Characteristics

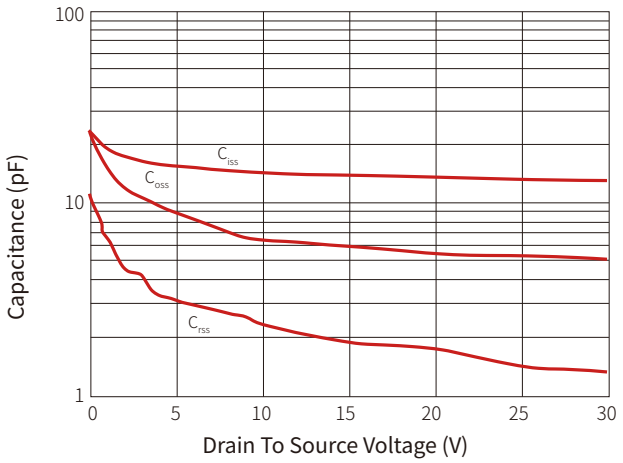


Fig.6 Gate Charge

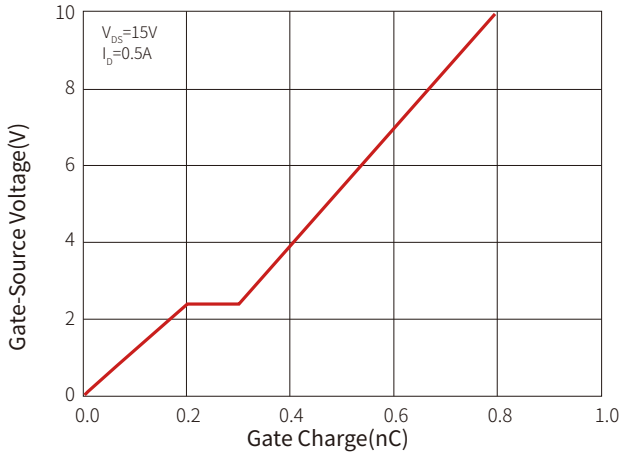


Fig.7 Normalized Threshold Voltage

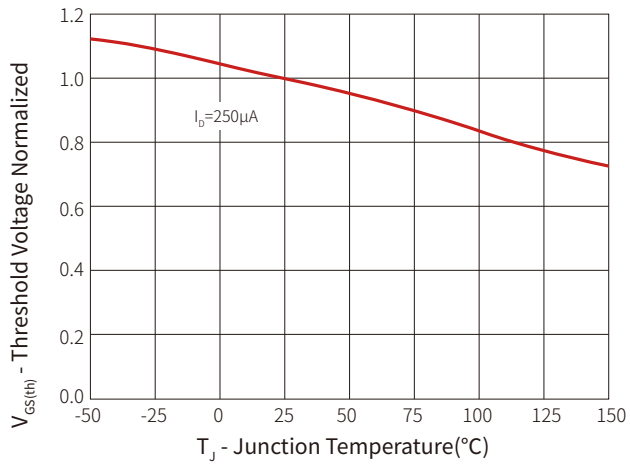


Fig.8 Normalized On Resistance Characteristics

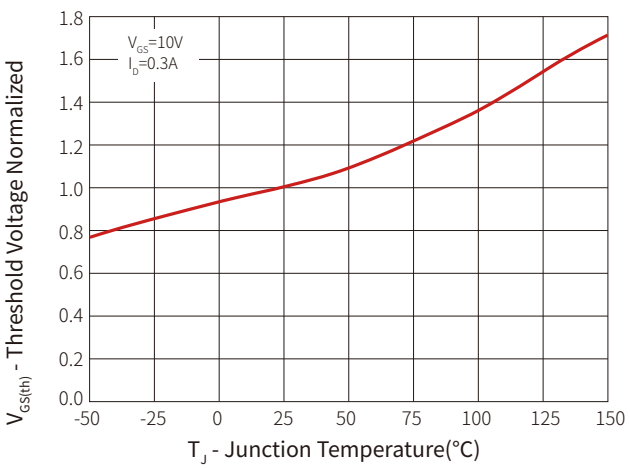


Fig.9 I_S ——— V_{SD}

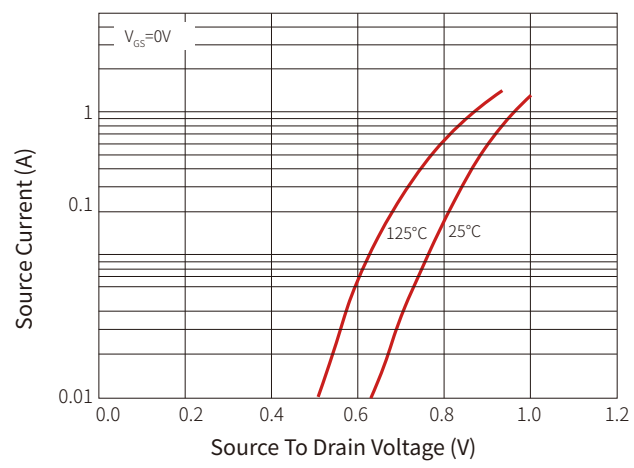


Fig.10 Drain Current

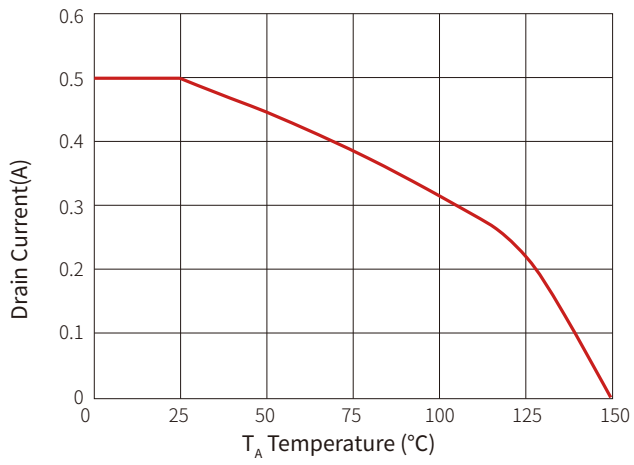


Fig.11 P_D Dissipation

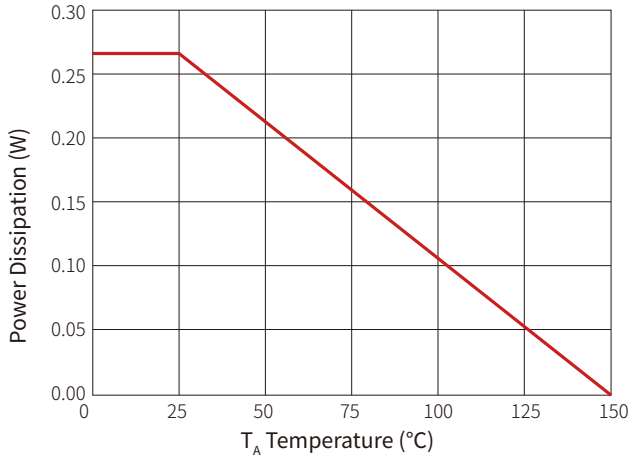


Fig.12 Safe Operation Area

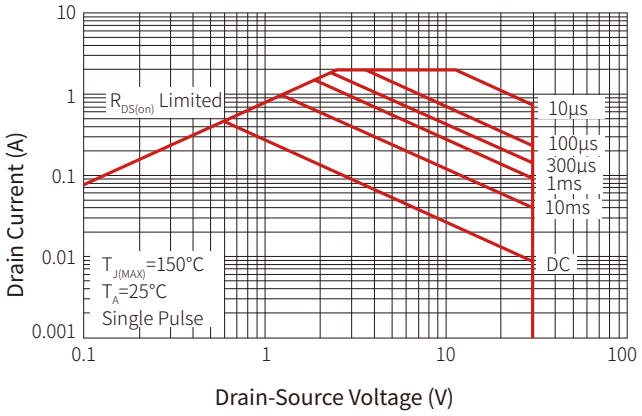
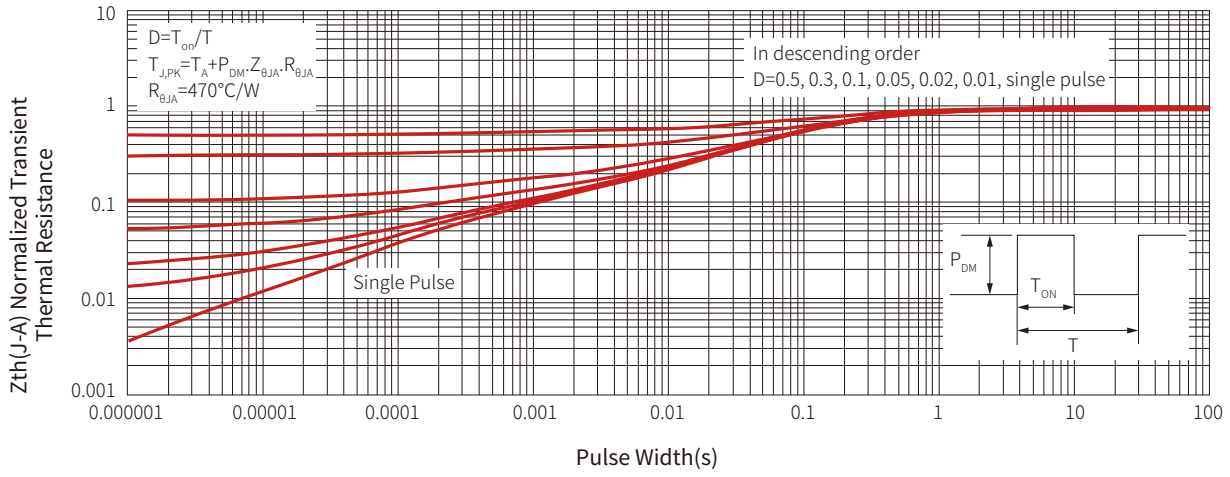
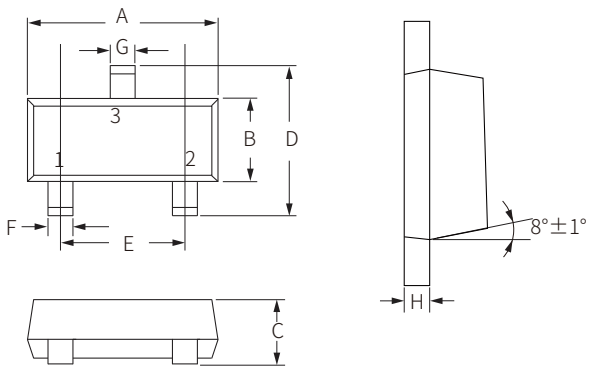


Fig.13 Normalized Transient Thermal Impedance

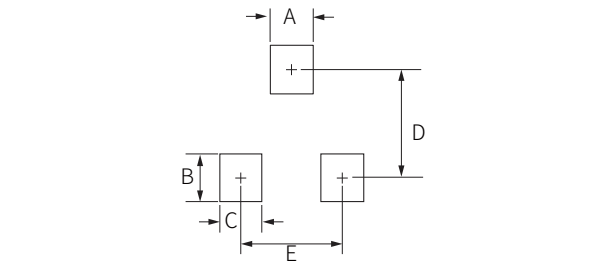


SOT-723 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.10	1.30	0.043	0.051
B	0.70	0.90	0.028	0.035
C	0.30	0.50	0.014	0.020
D	1.10	1.30	0.043	0.051
E	0.80TYP		0.031TYP	
F	0.175	0.25	0.007	0.010
G	0.225	0.30	0.009	0.012
H	0.09	0.13	0.003	0.005

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
	Dimensions	Dimensions
A	0.50	0.020
B	0.45	0.018
C	0.40	0.016
D	1.15	0.045
E	0.80	0.031

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNM3020-7S	SOT-723	3000PCS	7”

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