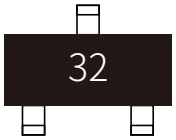
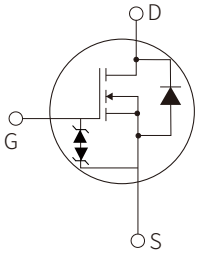
FEATURES

- High Density Cell Design For Low $R_{DS(On)}$
- Voltage Controlled Small Signal Switch
- Rugged and Reliable
- High Saturation Current Capability
- ESD Protected

SOT-723



Marking



Schematic Symbol

APPLICATION

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

APPROVALS

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

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions	Symbol	Value	Unit
Drain-Source Voltage	T_A=25°C	V_{DS}	20	V
Gate-Source Voltage	T_A=25°C	V_{GS}	±10	V
Drain Current (DC)	T_A=25°C,V_{GS}=4.5V	I_D*	0.92	A
	T_A=100°C,V_{GS}=4.5V		0.57	A
Drain Current (Pulsed)	T_A=25°C,V_{GS}=4.5V	I_{DM}*,**	3.69	A
Total Power Dissipation	T_A=25°C	P_{tot}	0.41	W
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55 to 150	°C
Maximum Resistance –Junction to Ambient	T_A=25°C	I_S	0.92	A
Thermal Resistance- Junction to Ambient		$R_{\theta JA}$*	300	°C/W

Notes:
* Surface Mounted on 1 in^2 pad area, t ⩽10 sec
** Pulse width ⩽300us, duty cycle⩽2 %

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_{DS}=250μA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	0.5		1	V
Drain Leakage Current	I_{DSS}	V_{DS}=16V,V_{GS}=0V			1	uA
Gate Leakage Current	I_{GSS}	V_{GS}=±10V ,V_{DS}=0V			±10	uA
On-State Resistance	$R_{DS(on)}$ [a]	V_{GS}=4.5V, I_{DS}=0.5A		250	300	mΩ
		V_{GS}=2.5V, I_{DS}=0.3A		320	380	mΩ
		V_{GS}=1.8V, I_{DS}=0.1A		440	500	mΩ
Diode Characteristics						
Diode Forward Voltage	V_{SD} [a]	I_{SD}=0.5A,V_{GS}=0V			1.2	V
Dynamic Characteristics[b]						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=10V, Frequency = 1 MHz		100		pF
Output capacitance	C_{oss}			22		pF
Reverse transfer capacitance	C_{rss}			12		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=10V,V_{GEN}=4.5V R_G= 3.9Ω, R_L=20 Ω, I_{DS}=0.5A		7		ns
Turn-on Rise Time	t_r			5.1		ns
Turn-Off Delay Time	$t_{d(off)}$			18.2		ns
Turn-Off Fall Time	t_f			5.6		ns
Gate Charge Characteristics[b]						
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=10V,I_{DS}=0.5A		1.03		nC
Gate-Source Charge	Q_{gs}			0.14		nC
Gate-Drain Charge	Q_{gd}			0.16		nC

Notes:
a : Pulse test ; pulse width≤300us, duty cycle≤2 %
b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Dissipation

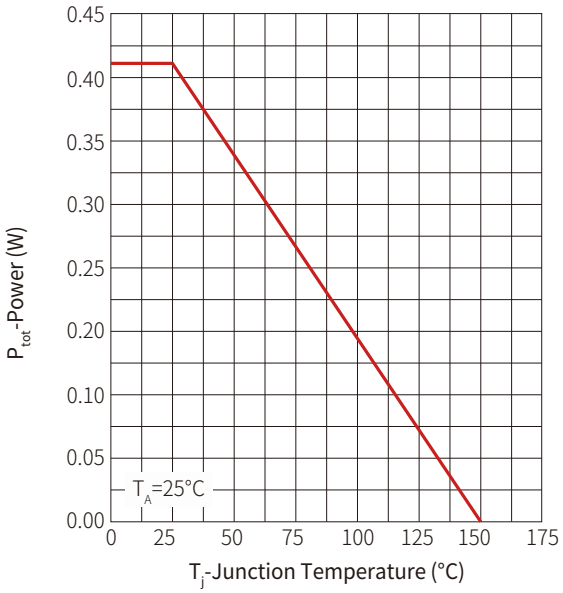


Figure2: Current Capability

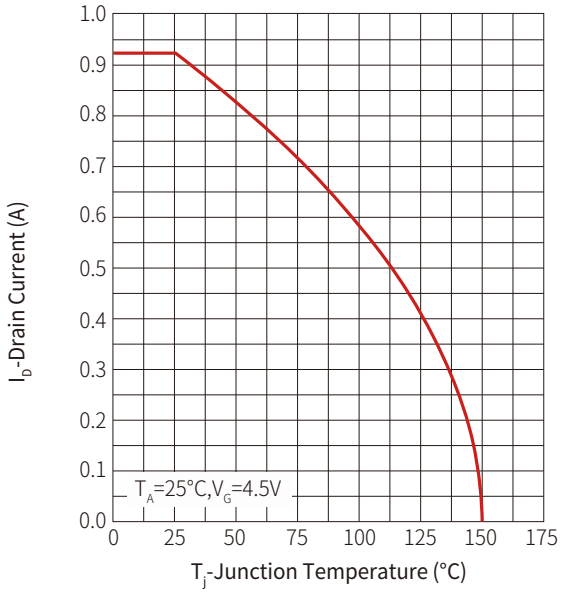


Figure3: Safe Operation Area

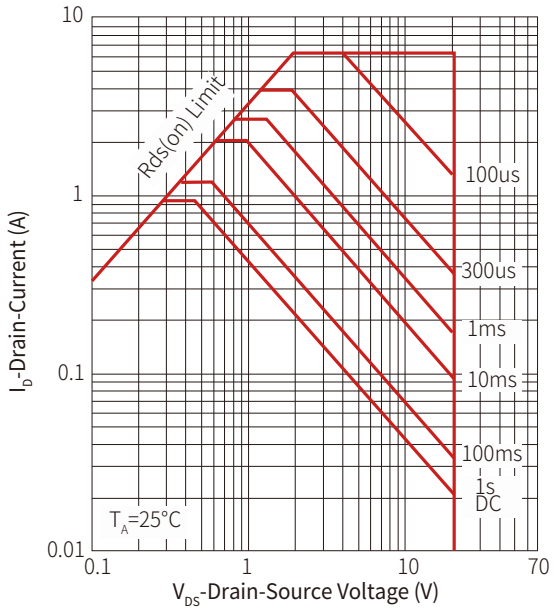


Figure 4: Transient Thermal Impedance

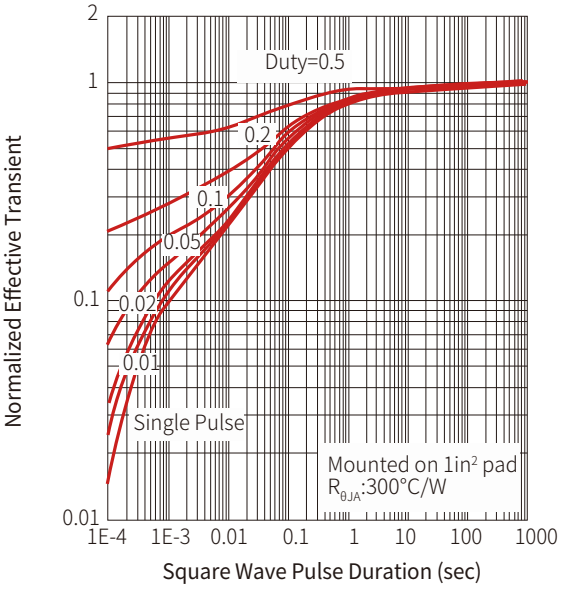


Figure 5:Output Characteristics

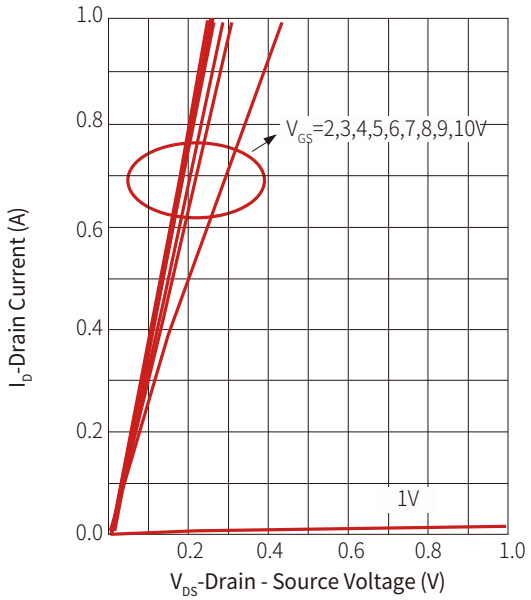


Figure 6: Drain-Source On Resistance

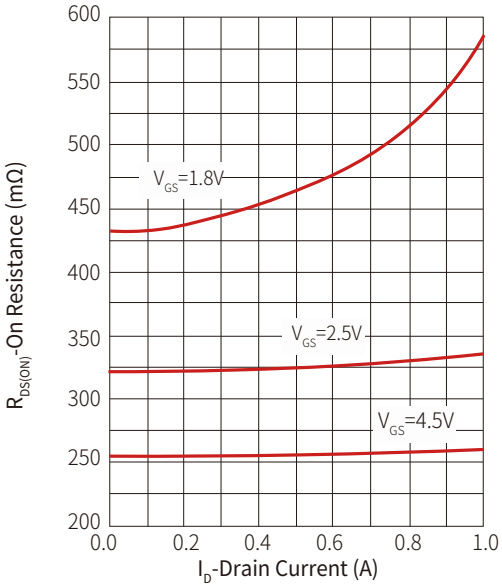


Figure 7:Transfer Characteristics

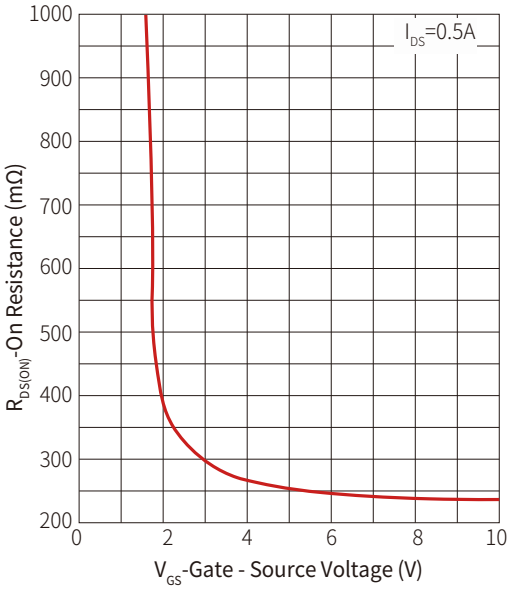


Figure 8: Normalized Threshold Voltage

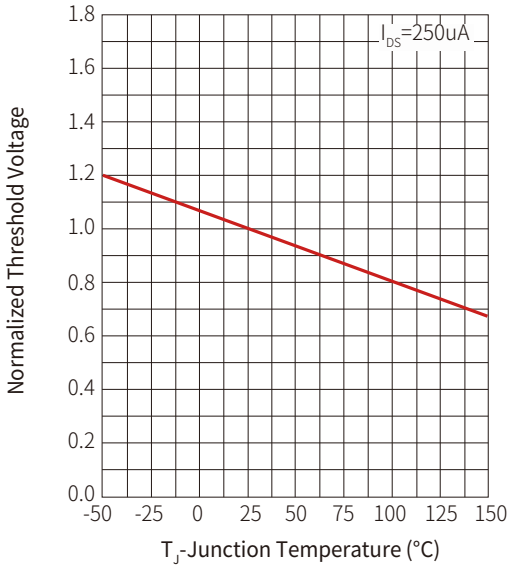


Figure 9:Normalized On Resistance

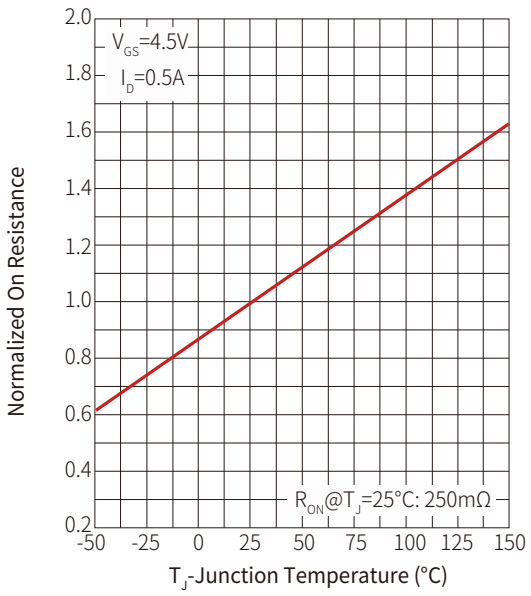


Figure 10: Diode Forward Current

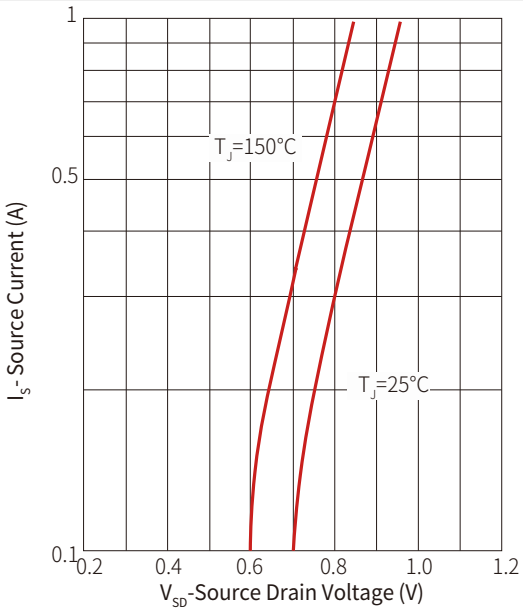


Figure 11:Capacitance

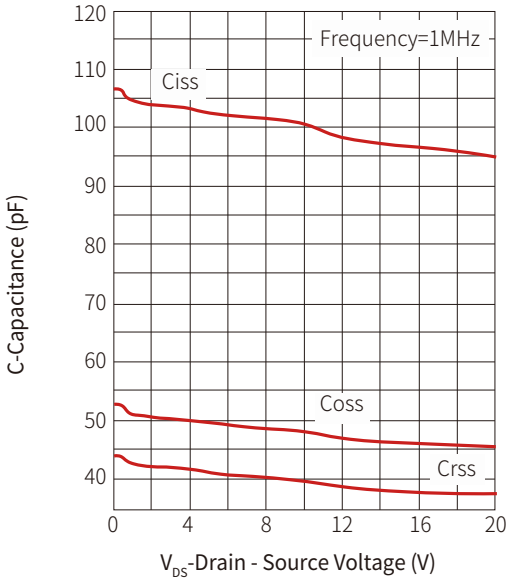
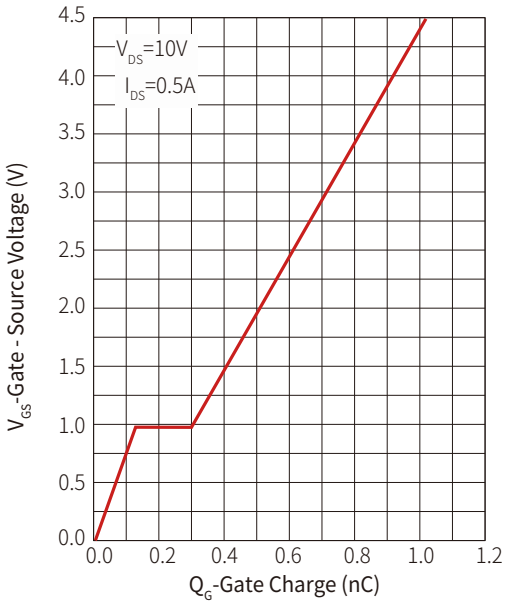
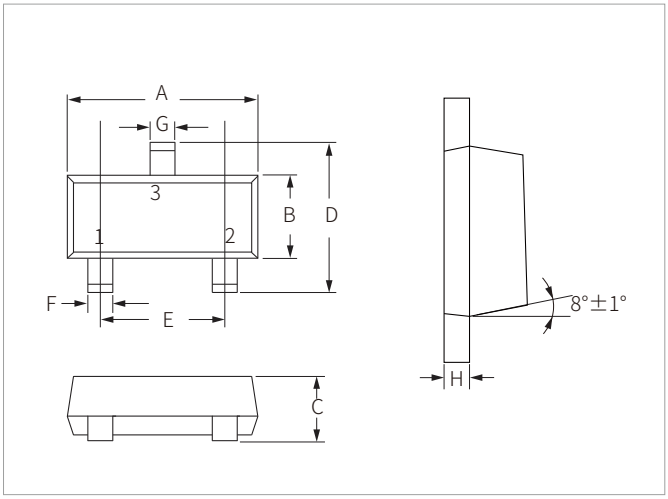


Figure 12: Gate Charge

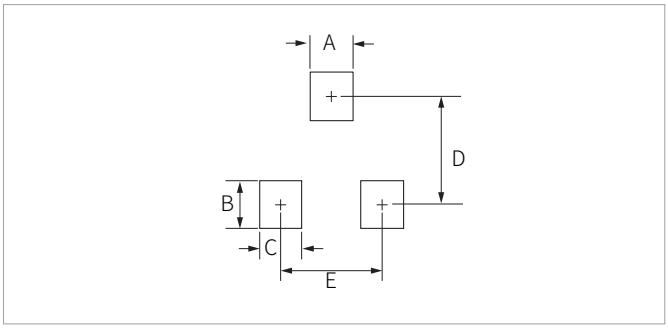


SOT-723 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.15	1.35	0.045	0.053
B	0.75	0.85	0.030	0.033
C	0.35	0.45	0.014	0.018
D	1.15	1.35	0.045	0.053
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
SNM72T1N02E	SOT-723	8000PCS	7”

Headquarters
No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline
400-021-5756

Web
Https://www.semiware.com

Sales Center
Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service
Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support
Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions
Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

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