

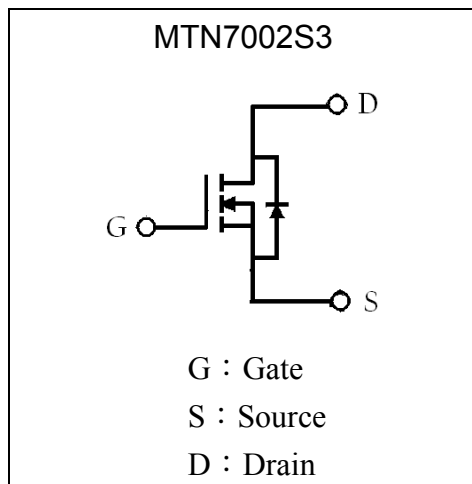
# N-CHANNEL MOSFET

## MTN7002S3

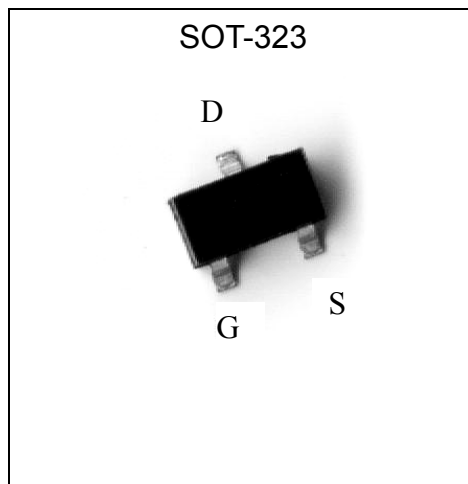
### Description

- The MTN7002S3 is a N-channel enhancement-mode MOSFET.
- Pb-free package

### Symbol



### Outline



### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	BV <sub>DSS</sub>	60	V
Drain-Gate Voltage (R <sub>GS</sub> =1MΩ)	BV <sub>DGR</sub>	60	V
Gate-Source Voltage	V <sub>GS</sub>	±40	V
Continuous Drain Current (Ta=25°C)	I <sub>D</sub>	200 *1	mA
Continuous Drain Current (Ta=100°C)	I <sub>D</sub>	115 *1	mA
Pulsed Drain Current (Ta=25°C)	I <sub>DM</sub>	800 *2	mA
Total Power Dissipation (Ta=25°C)	P <sub>D</sub>	200	mW
Total Power Dissipation (Tc=25°C)		400	
Operating Junction Temperature	T <sub>j</sub>	-55~+150	°C
Storage Temperature	T <sub>stg</sub>	-55~+150	°C
Thermal Resistance, Junction-to-Ambient	R <sub>th,ja</sub>	625	°C/W
Thermal Resistance, Junction-to-Case	R <sub>th,jc</sub>	250	°C/W
Lead Temperature, for 10 second Soldering	T <sub>L</sub>	240	°C

Note : \*1. The power dissipation of the package may result in a continuous drain current

\*2. Pulse Width ≤ 300μs, Duty cycle ≤ 2%



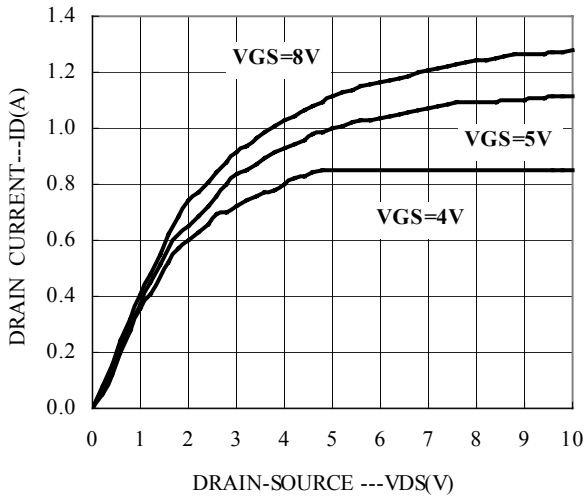
**Electrical Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV <sub>DSS</sub>	60	-	-	V	V <sub>GS</sub> =0, I <sub>D</sub> =10μA
V <sub>GS(th)</sub>	1	-	2.5	V	V <sub>DS</sub> =2.5V, I <sub>D</sub> =0.25mA
I <sub>GSS/F</sub>	-	-	100	nA	V <sub>GS</sub> =+20V, V <sub>DS</sub> =0
I <sub>GSS/R</sub>	-	-	-100	nA	V <sub>GS</sub> =-20V, V <sub>DS</sub> =0
I <sub>DSS</sub>	-	-	1	μA	V <sub>DS</sub> =60V, V <sub>GS</sub> =0
I <sub>D(ON)</sub>	500	-	-	mA	V <sub>DS</sub> >2V <sub>DS(ON)</sub> , V <sub>GS</sub> =10V
V <sub>DS(ON)</sub>	-	-	0.375	V	I <sub>D</sub> =50mA, V <sub>GS</sub> =5V
	-	-	3.75	V	I <sub>D</sub> =500mA, V <sub>GS</sub> =10V
R <sub>DS(ON)</sub>	-	-	7.5	Ω	I <sub>D</sub> =50mA, V <sub>GS</sub> =5V
	-	-	7.5		I <sub>D</sub> =500mA, V <sub>GS</sub> =10V
G <sub>FS</sub>	80	-	-	mS	V <sub>DS</sub> >2V <sub>DS(ON)</sub> , I <sub>D</sub> =200mA
C <sub>iss</sub>	-	-	50	pF	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1MHz
C <sub>oss</sub>	-	-	25		
C <sub>rss</sub>	-	-	5		

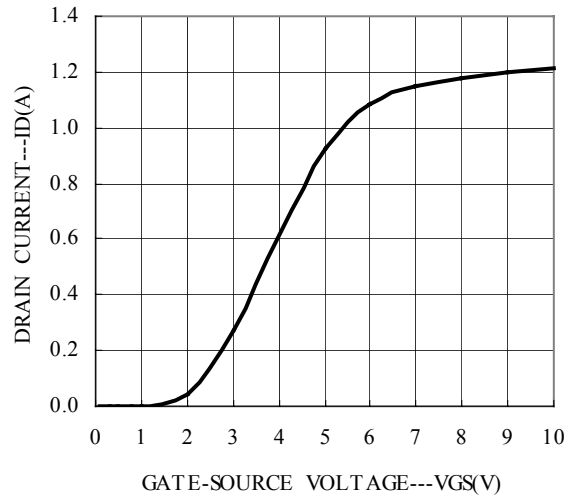
\*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

**Characteristic Curves**

TYPICAL OUTPUT CHARACTERISTICS

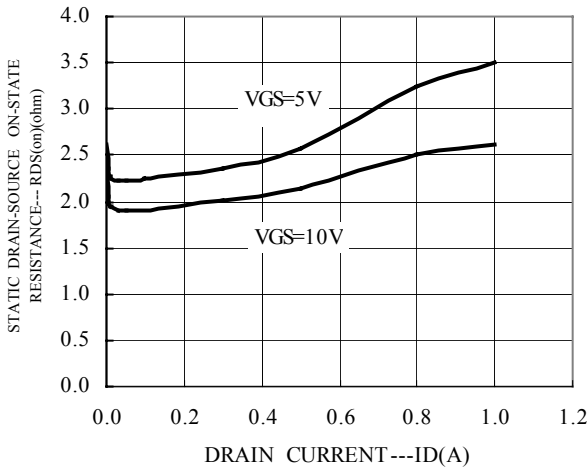


TYPICAL TRANSFER CHARACTERISTIC

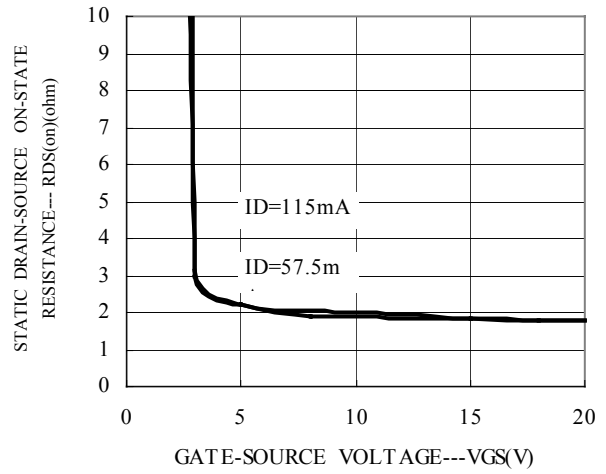




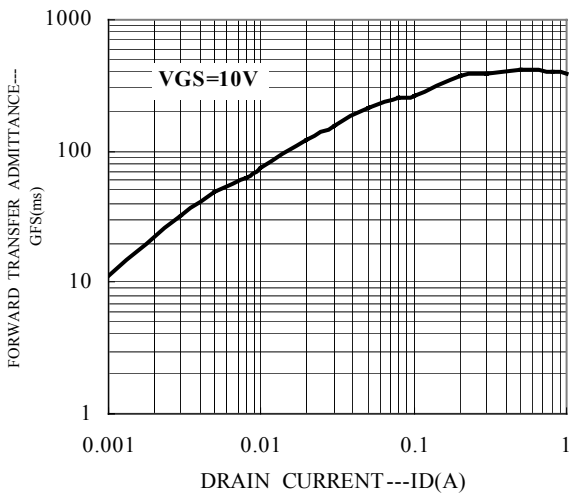
STATIC DRAIN-SOURCE ON-STATE RESISTANCE vs DRAIN CURRENT



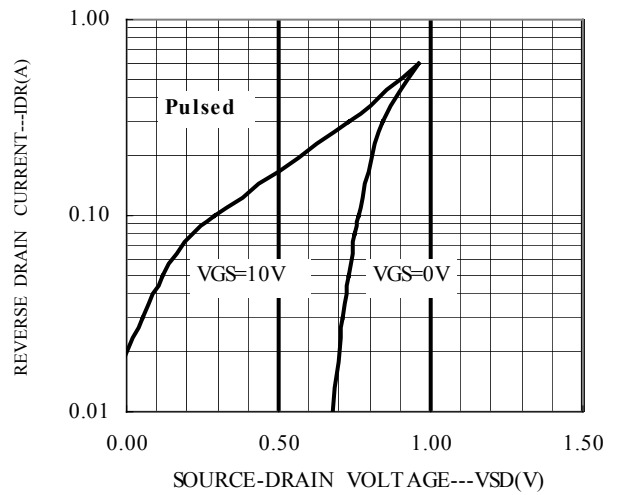
STATIC DRAIN-SOURCE ON-STATE RESISTANCE VS GATE-SOURCE VOLTAGE



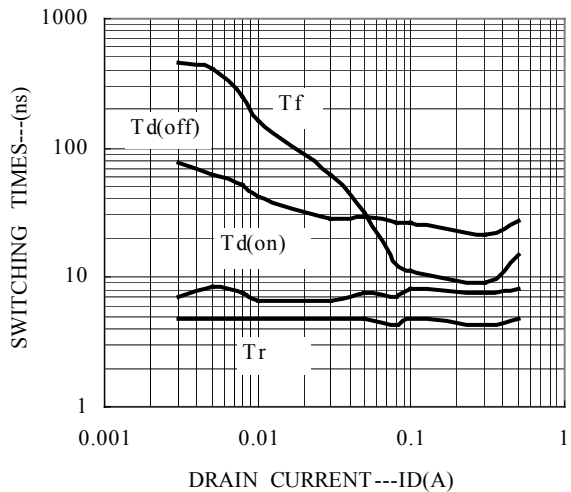
FORWARD TRANSFER ADMITTANCE vs DRAIN CURRENT



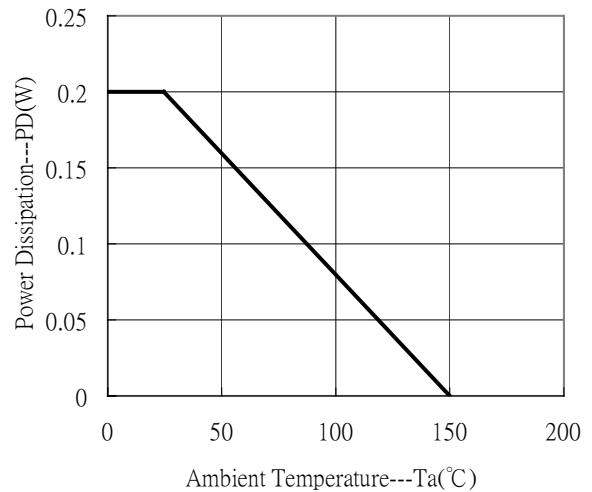
REVERSE DRAIN CURRENT vs SOURCE-DRAIN VOLTAGE



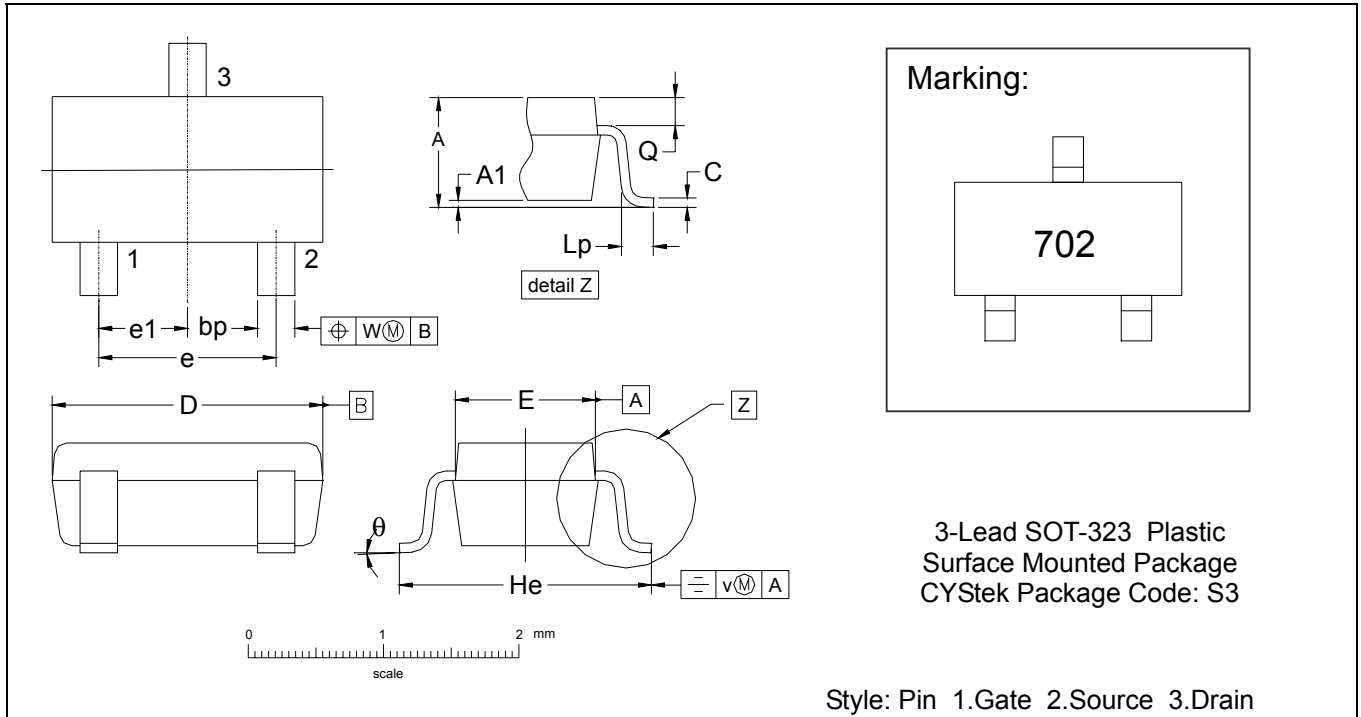
SWITCHING CHARACTERISTICS



Power Derating Curve



**SOT-323 Dimension**



3-Lead SOT-323 Plastic Surface Mounted Package  
 CYStek Package Code: S3

\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0315	0.0433	0.80	1.10	e1	0.0256	-	0.65	-
A1	0.0000	0.0039	0.00	0.10	He	0.0787	0.0886	2.00	2.25
bp	0.0118	0.0157	0.30	0.40	Lp	0.0059	0.0177	0.15	0.45
C	0.0039	0.0098	0.10	0.25	Q	0.0051	0.0091	0.13	0.23
D	0.0709	0.0866	1.80	2.20	v	0.0079	-	0.2	-
E	0.0453	0.0531	1.15	1.35	w	0.0079	-	0.2	-
e	0.0512	-	1.3	-	theta	-	-	10°	0°

Notes: 1.Controlling dimension: millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material:**

- Lead: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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