



## N-Channel Small Signal MOSFET

60V  
SOT323

## Features

- Advanced Trench Process Technology
- Very Low Leakage Current in Off Condition
- High Density Cell Design for Low RDS(ON)
- ESD Protected 2KV HBM

## Mechanical Data

- Case: SOT323 Package
- Case Material: "Green" Molding Compound  
UL Flammability Classification Rating 94V-0
- Halogen Free

Note: Products with logo  or  are made by HY Electronic (Cayman) Limited.

## Ordering Information

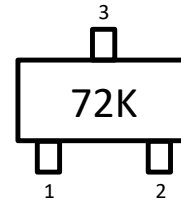
- Package :SOT323
- Reel Size :7 (inches)
- Quantity Per Reel :3,000 pcs
- Quantity One Box :45,000 pcs
- Quantity One Carton :180,000 pcs

## Package Outline



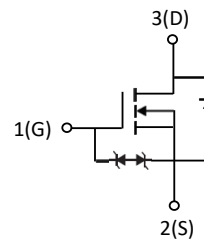
SOT323 Top View

## Marking Information



"72K" = Product Type Marking Code

## Device Schematic &amp; PIN Configuration



Pin Assignment		
1	G	Gate
2	S	Source
3	D	Drain

## Maximum Ratings (@TA = +25°C, unless otherwise specified.)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	60	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Drain Current	I <sub>D</sub>	270	mA
Pulsed Drain Current <sup>(1)</sup>	I <sub>DM</sub>	1080	mA
Power Dissipation	P <sub>D</sub>	340	mW
Junction Temperature	T <sub>J</sub>	-55 to +150	°C
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	367	°C/W

## Electrical Characteristics(@TA = +25°C, unless otherwise specified.)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =10uA	V <sub>DSS</sub>	60	-	-	V
Gate-Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	V <sub>GS(th)</sub>	1	-	2	V
Gate-Body Leakage	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V	I <sub>GSS</sub>	-	-	±1	μA
Zero Gate Voltage Drain Current	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V	I <sub>DSS</sub>	-	-	1	μA
Drain-Source On-Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =200mA	R <sub>DS(ON)</sub>	-	-	3	Ω
	V <sub>GS</sub> =4.5V, I <sub>D</sub> =200mA		-	-	4	
	V <sub>GS</sub> =3V, I <sub>D</sub> =10mA		-	-	4.5	
Forward Transconductance	V <sub>DS</sub> =15V, I <sub>D</sub> =250mA	g <sub>fs</sub>	100	-	-	ms
Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =200mA	V <sub>SD</sub>	-	0.82	1.3	V



## Electrical Characteristics(@TA = +25°C, unless otherwise specified.)

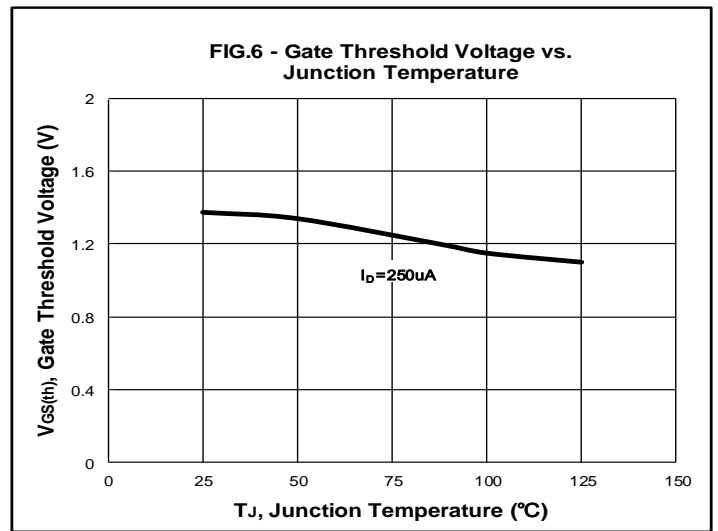
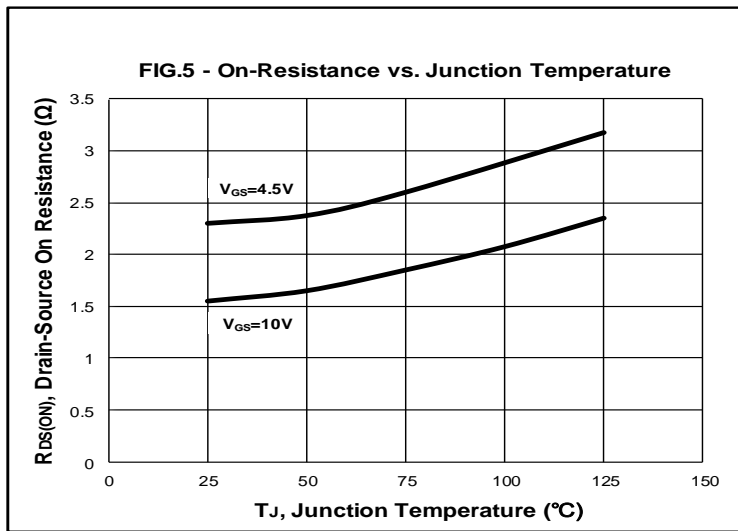
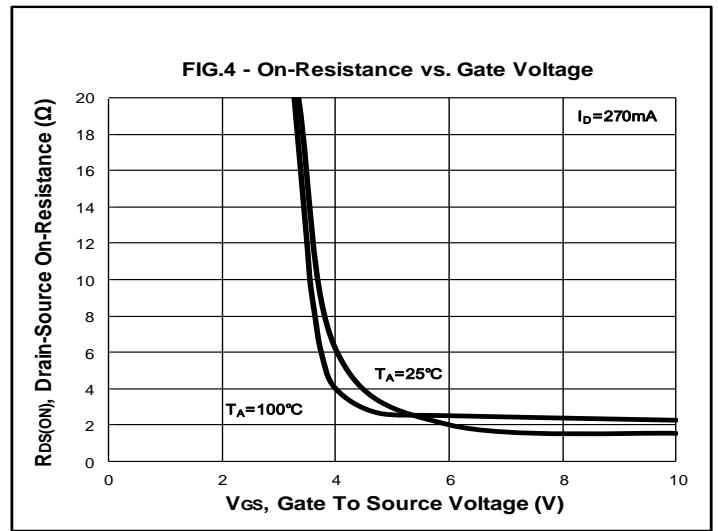
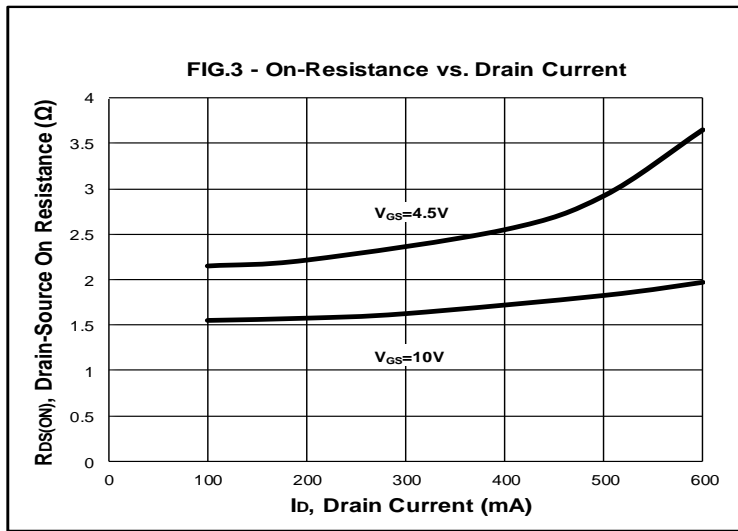
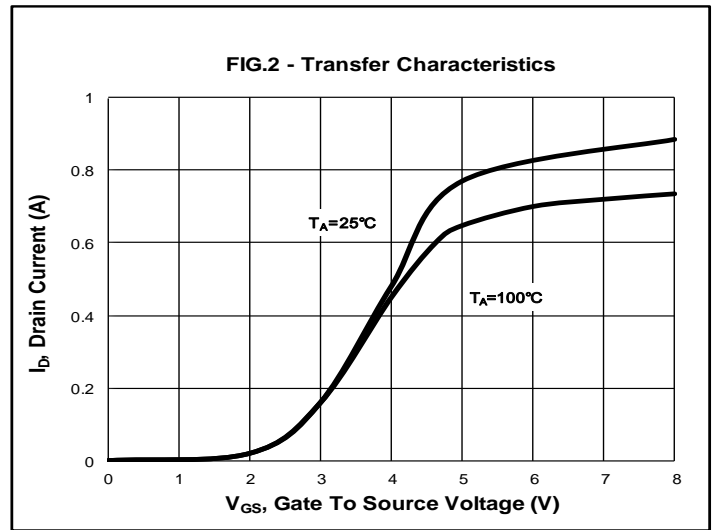
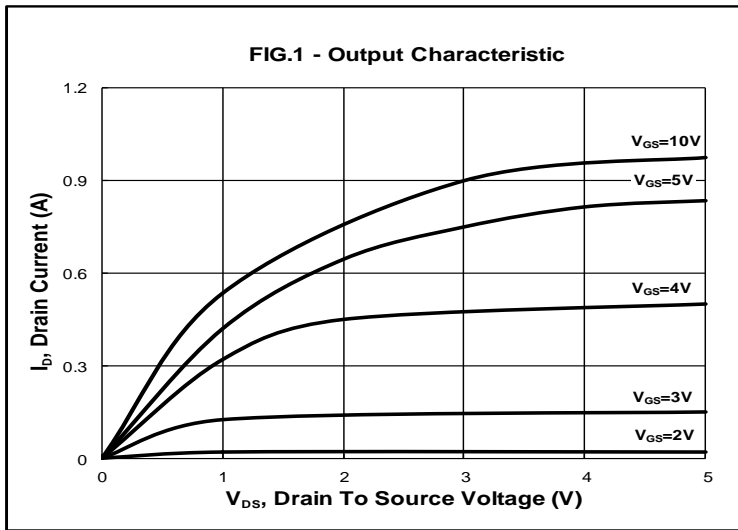
Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
<b>Dynamic Characteristics</b>						
Gate Resistance	$V_{DS}=0V, f=1MHz$	$R_G$	-	6	-	$\Omega$
Total Gate Charge	$V_{DS}=30V, V_{GS}=10V,$ $I_D=270mA$ (Note 1,2)	$Q_G$	-	1.23	-	nC
Gate-Source Charge		$Q_{GS}$	-	0.55	-	
Gate-Drain Charge		$Q_{GD}$	-	0.2	-	
Input Capacitance	$V_{DS}=10V, V_{GS}=0V$ $f=1MHz$	$C_{ISS}$	-	23	-	pF
Output Capacitance		$C_{OSS}$	-	11	-	
Reverse Transfer Capacitance		$C_{RSS}$	-	5	-	
<b>Switching Characteristics</b>						
Turn-On Delay Time	$V_{DD}=50V, V_{GS}=10V,$ $R_G=47.9\Omega, I_D=0.185A$ (Note 1,2)	$t_{d(on)}$	-	5.6	-	ns
Turn-On Rise Time		$t_r$	-	7.0	-	
Turn-Off Delay Time		$t_{d(off)}$	-	20	-	
Turn-Off Fall Time		$t_f$	-	73	-	

Notes: 1. Pulse Test : Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$ 

2. Essentially independent of operating temperature typical characteristics.



### Rating and Characteristic Curves





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FIG.7 - Capacitance Characteristics

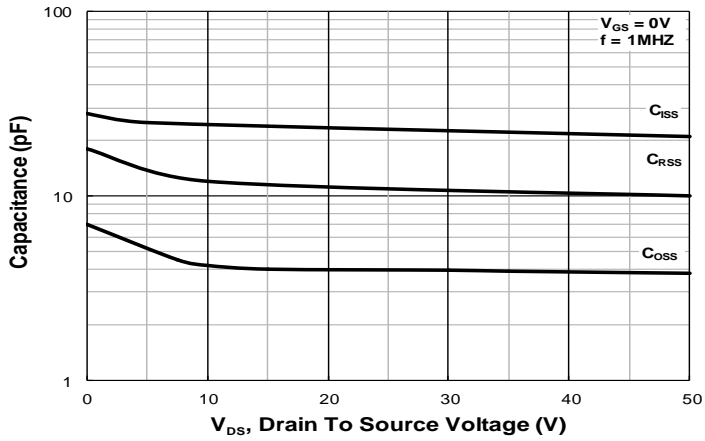


FIG.8 - Safe Operating Area

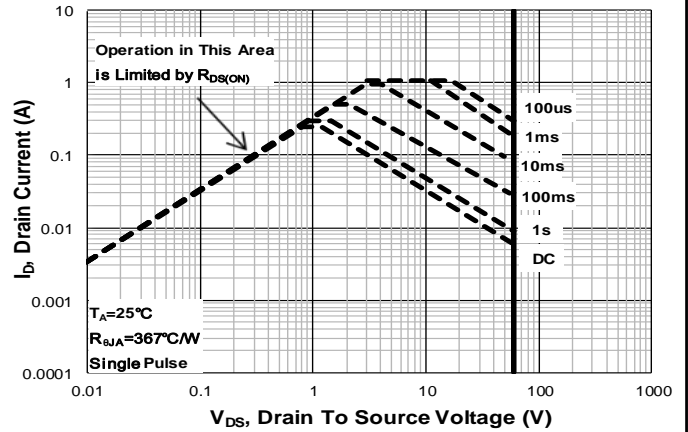


FIG.9 - Body-Diode Forward Characteristic

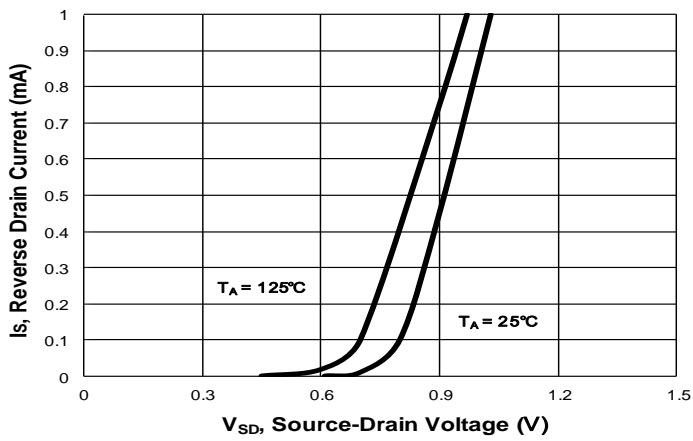
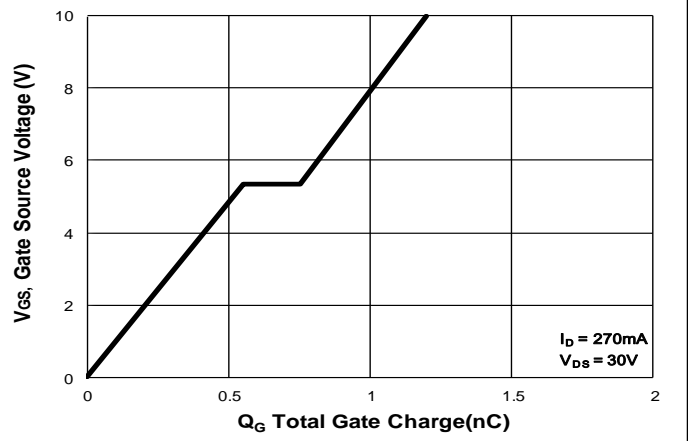
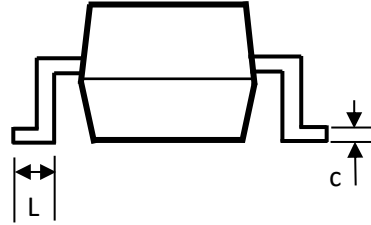
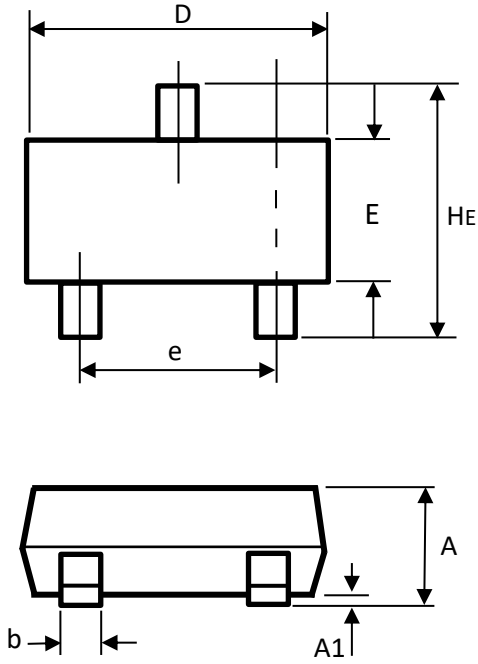


FIG.10 - Gate Charge Characteristics



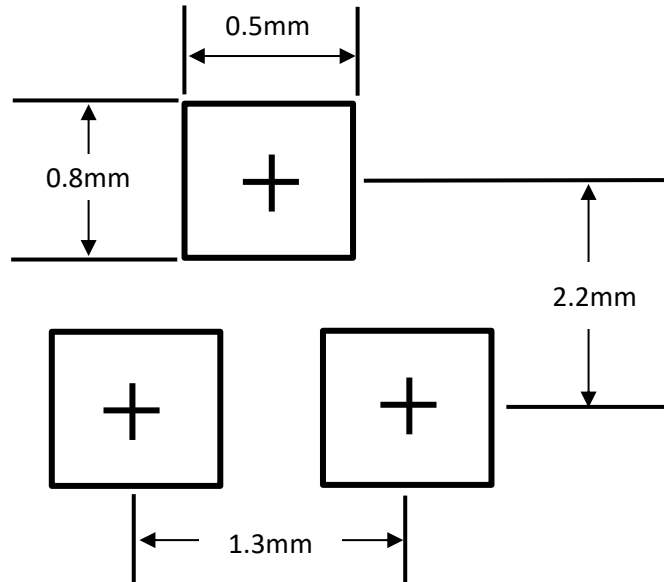


### Package Outline Dimensions



SOT323 Package		
Dim	Min	Max
A	0.90	1.00
A1	0.00	0.10
b	0.20	0.40
c	0.08	0.15
D	2.00	2.20
E	1.15	1.35
e	1.20	1.40
L	0.525 REF	
HE	2.15	2.45
All Dimensions in mm		

### Suggested Soldering Pad Layout



Note:

- 1. The pad layout is for reference purposes only.
- 2. General tolerance  $\pm 0.05\text{mm}$



## Disclaimer

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