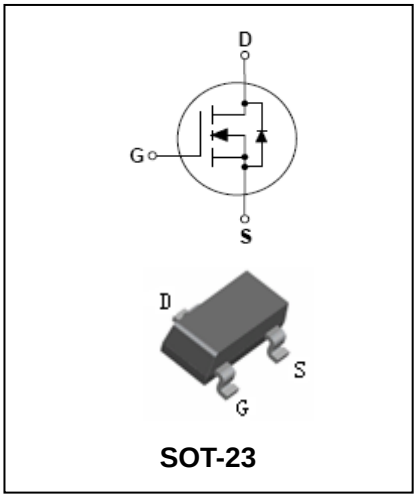
2306

N-Channel Enhancement Mode Power Mosfet

FEATURES

- Capable of 2.5V gate drive
- Lower on-resistance
- Reliable and Rugged
- Electrostatic Sensitive Devices.
- MSL 1.



SOT-23

APPLICATIONS

- Power Management in Notebook.
- Portable Equipment.
- Battery Powered System.

ORDERING INFORMATION

Type No.	Marking	Package Code
2306	2306	SOT-23

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	**Parameter**	**Value**	**Units**
V_{DSS}	Drain-Source voltage	20	V
V_{GSS}	Gate -Source voltage	±12	V
I_D	Maximum Drain current T_A=25℃ T_A=70℃	5.3 4.3	A
I_{DM}	Pulsed Drain current	10	A
P_D	Power Dissipation	1.38	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	90	℃/W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55~+150	℃

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ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	-	1.2	
Forward Transconductance	gfs	V_{DS}=5V,I_D=5.3A	-	13	-	S
Gate-body Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=12V	-	-	100	nA
		V_{DS}=0V, V_{GS}=-12V	-	-	-100	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1	μA
		V_{DS}=16V,V_{GS}=0V	-	-	10	
Drain-Source on-resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=5.5A	-	-	30	mΩ
		V_{GS}=4.5V,I_D=5.3A	-	-	35	
		V_{GS}=2.5V,I_D=2.6A	-	-	50	
		V_{GS}=1.8V,I_D=1.0A	-	-	90	
Diode forward voltage	V_{SD}	V_{GS}=0V,I_S=1.2A	-	-	1.2	V
Total Gate Charge	Qg	V_{DS}=10V,V_{GS}=4.5V, I_D=5.3A	-	8.7	-	nC
Gate-Source Charge	Qgs		-	1.5	-	
Gate-Drain Charge	Qgd		-	3.6	-	
Input capacitance	C_{ISS}	V_{DS}=15V,V_{GS}=0V,f=1.0MHz	-	603	-	pF
Output capacitance	C_{OSS}		-	144	-	
Reverse transfer capacitance	C_{RSS}		-	111	-	
Turn-On Delay Time	$t_{D(ON)}$	V_{DS} = 15V, I_D=1A, R_G= 2Ω, V_{GS}= 10V, R_D= 15Ω	-	6	-	ns
Rise Time	t_R		-	14	-	
Turn-Off Delay Time	$t_{D(OFF)}$		-	1804	-	
Fall Time	t_R		-	2.8	-	
Reverse Recovery Time	Trr	I_S=5A,V_{GS}=0 dI/dt=100A/us	-	16.8	-	ns
Reverse Recovery Charge	Qrr		-	11	-	nC

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

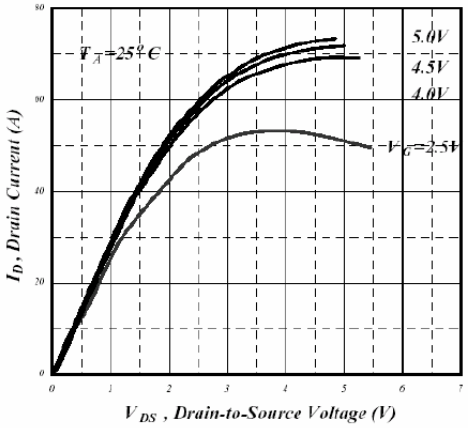

Fig 1. Typical Output Characteristics

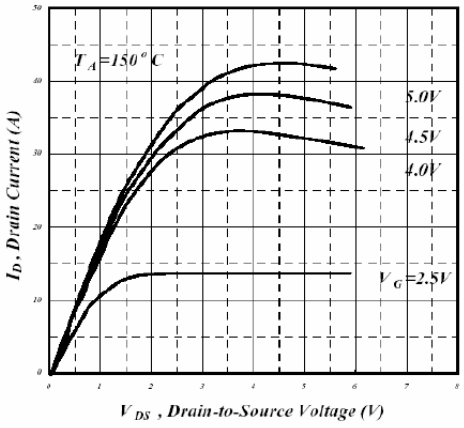

Fig 2. Typical Output Characteristics

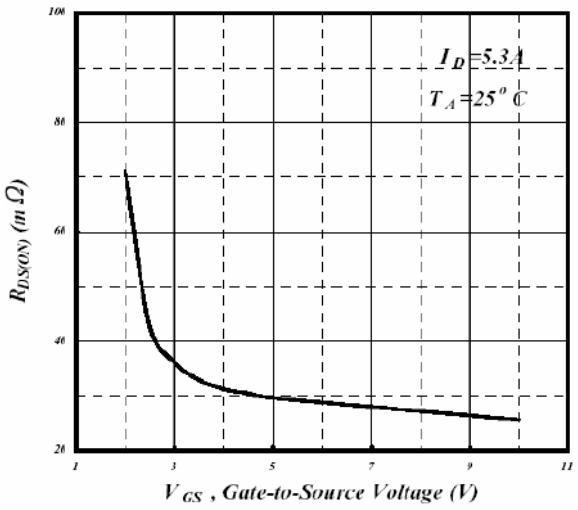

Fig 3. On-Resistance v.s. Gate Voltage

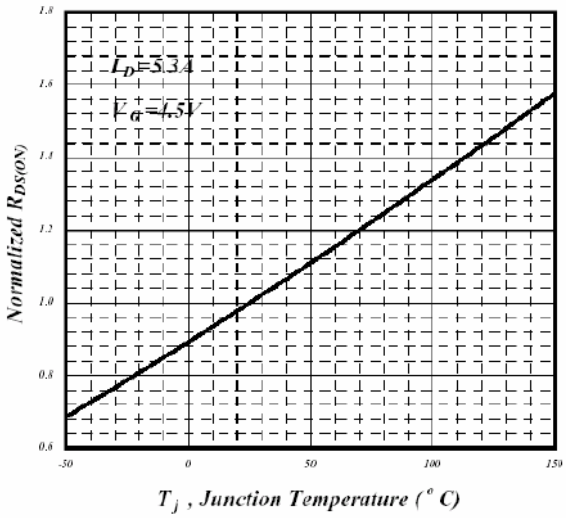

Fig 4. Normalized On-Resistance v.s. Junction Temperature

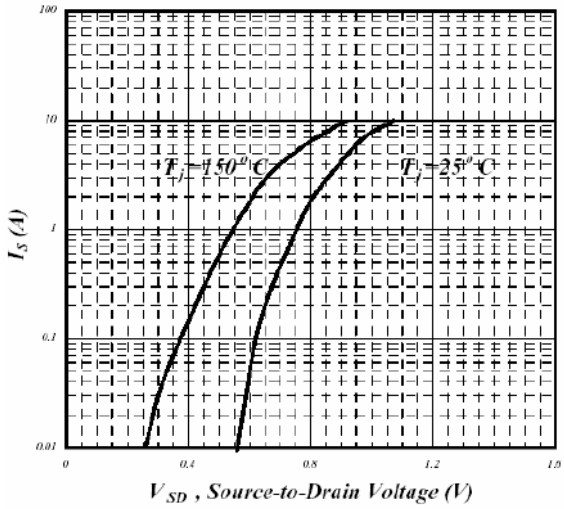

Fig 5. Forward Characteristic of Reverse Diode

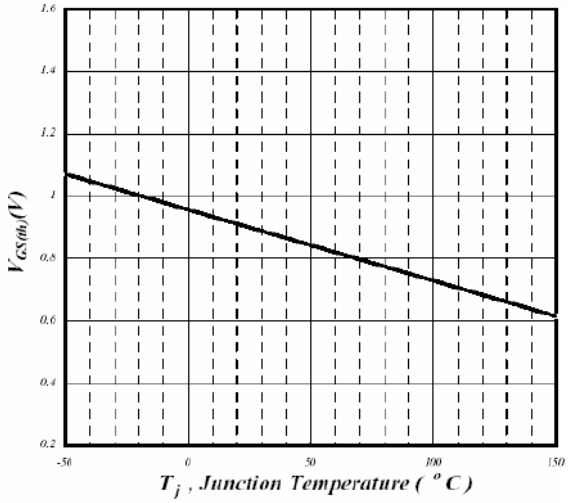

Fig 6. Gate Threshold Voltage v.s. Junction Temperature

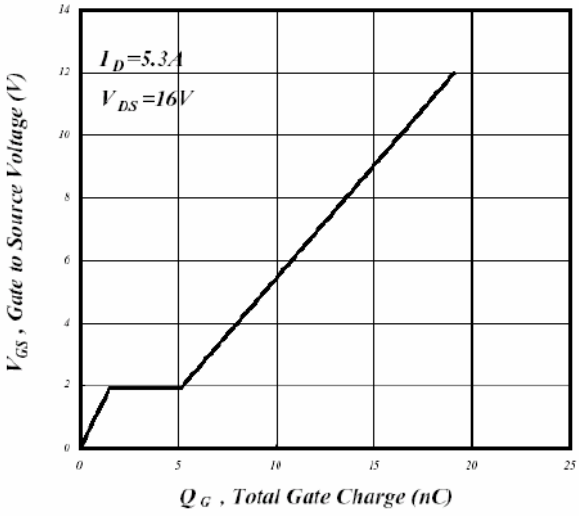

Fig 7. Gate Charge Characteristics

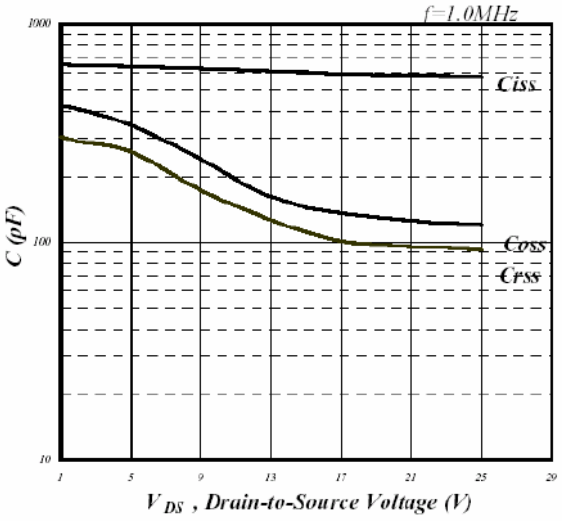

Fig 8. Typical Capacitance Characteristics

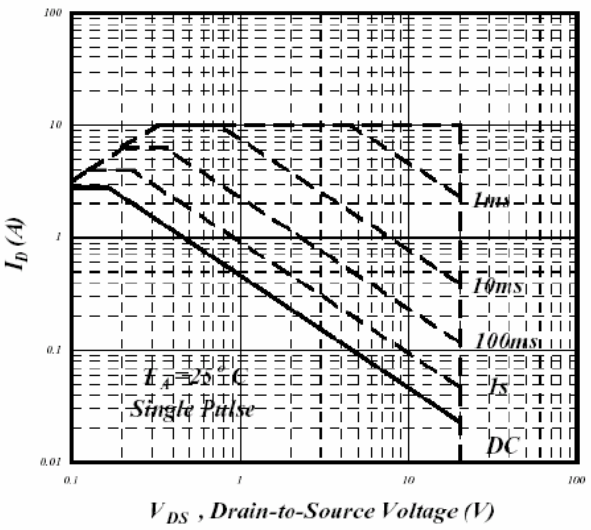

Fig 9. Maximum Safe Operating Area

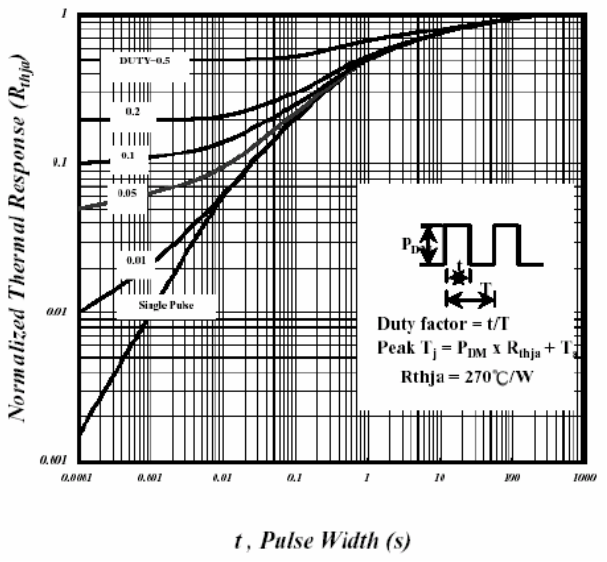

Fig10. Effective Transient Thermal Impedance

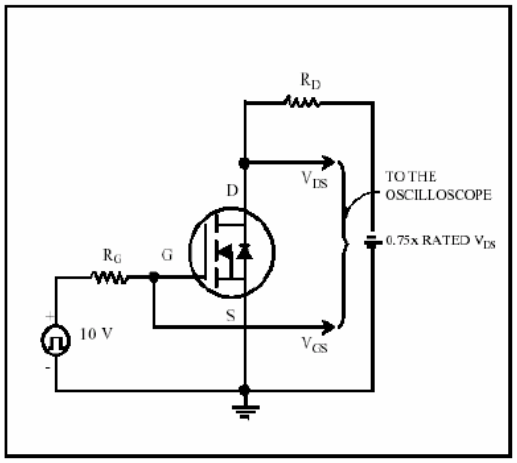

Fig 11. Switching Time Circuit

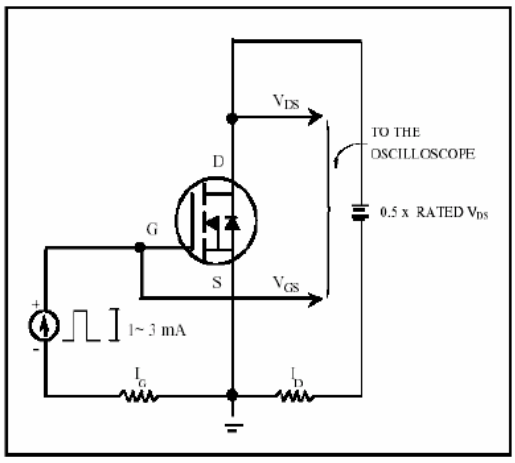

Fig 12. Gate Charge Circuit

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PACKAGE OUTLINE

Plastic surface mounted package

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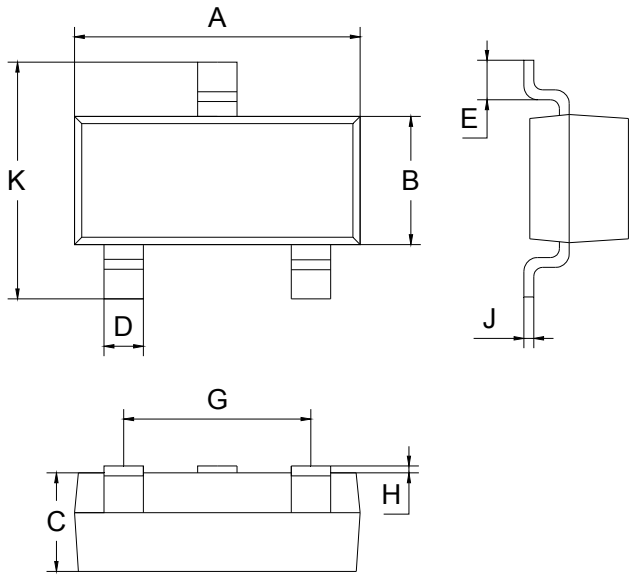
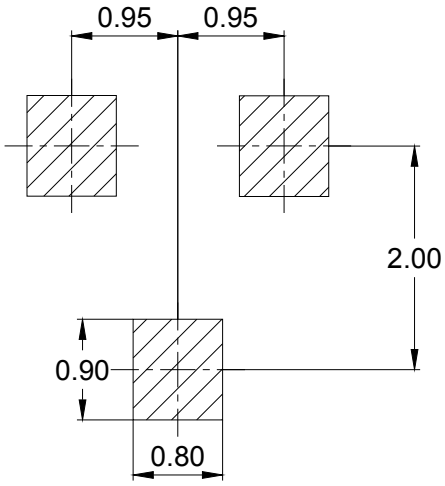


SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
2306	SOT-23	3000/Tape&Reel