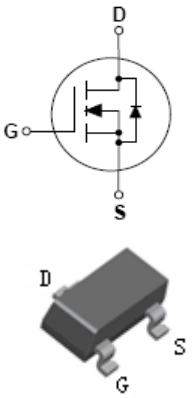
2308

N-Channel 60V(D-S) MOSFET

FEATURES

- $R_{DS(ON)} \leq 270m\Omega$ @V_{GS}=10V.
- $R_{DS(ON)} \leq 340m\Omega$ @V_{GS}=4.5V.
- Super high density cell design for extremely low $R_{DS(ON)}$.
- Exceptional on-resistance and maximum DC current capability.
- Electrostatic Sensitive Devices.
- MSL 1



SOT-23

APPLICATIONS

- Power Management in Note book.
- DC/DC Converter.
- Load Switch.

ORDERING INFORMATION

Type No.	Marking	Package Code
2308	2308	SOT-23

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{DSS}	Drain-Source voltage		60	V
V_{GSS}	Gate -Source voltage		±20	V
I_D	Continuous Drain current (T_j=150℃)	T_A=25℃	1.5	A
		T_A=70℃	1.2	
I_{DM}	Pulsed Drain Current		6	A
P_D	Power Dissipation	T_A=25℃	1.3	W
		T_A=70℃	0.8	
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient(Note1)		100	℃/W
T_J	Operating Junction Temperature		-55 to +150	℃

Note:1.The Device Mounted on 1in^2 FR4 board with 2 oz copper.

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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	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	2	3	
Gate-body Leakage Forward Reverse	I_{GSS}	V_{DS}=0V, V_{GS}=20V V_{DS}=0V, V_{GS}=-20V	- -	- -	100 -100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V	-	-	1	μA
Static Drain-Source on-resistance(Note1)	$R_{DS(ON)}$	V_{GS}=10V,I_D=1.5A V_{GS}=4.5V,I_D=1.0A	- -	230 275	270 340	mΩ
Drain Forward Voltage(Note2)	V_{SD}	V_{GS}=0V,I_{SD}=1A	-	0.8	1.2	V
Total Gate Charge	Q_g	V_{DS}=25V,V_{GS}=10V,I_D=1.5A	-	12	-	nC
Total Gate Charge	Q_g	V_{DS}=25V,V_{GS}=4.5V,I_D=1.5A	-	6.6	-	
Gate-Sourge Charge	Q_{gs}		-	2.6	-	
Gate-Drain Charge	Q_{gd}		-	3.3	-	
Gate Resistance	R_g	V_{DS}=0V,V_{GS}=0V,f=1.0MHz	-	0.8	-	Ω
Input Capacitance	C_{ISS}	V_{DS}=15V,V_{GS}=0V,f=1.0MHz	-	326	-	pF
Output Capacitance	C_{OSS}		-	38	-	
Reverse Transfer Capacitance	C_{RSS}		-	11	-	
Turn-On Delay Time	$t_{D(ON)}$	V_{DD}=50V,I_D= 0.2A, R_L=33Ω, V_{GEN}=10V, R_{GEN}=6Ω	-	10	-	ns
Turn-On Rise Time	T_r		-	6	-	
Turn-Off Delay Time	$t_{D(OFF)}$		-	30	-	
Turn-Off Rise Time	T_f		-	4	-	

Note:1.Pulse test:pulse width≤300us,duty cycle≤2%,guaranteed by design,not subject to production testing.

2.Matsuki reserves the ring to improve product design,functions and reliablity without notice.

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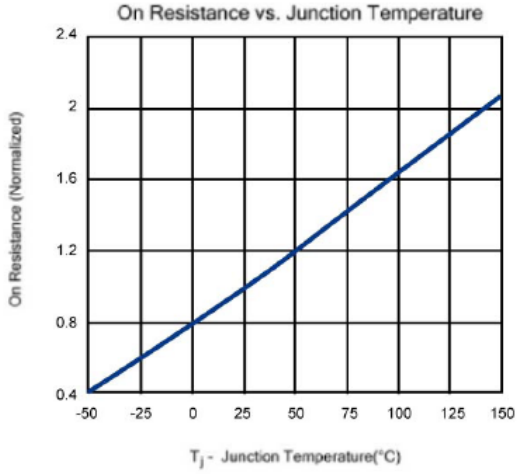
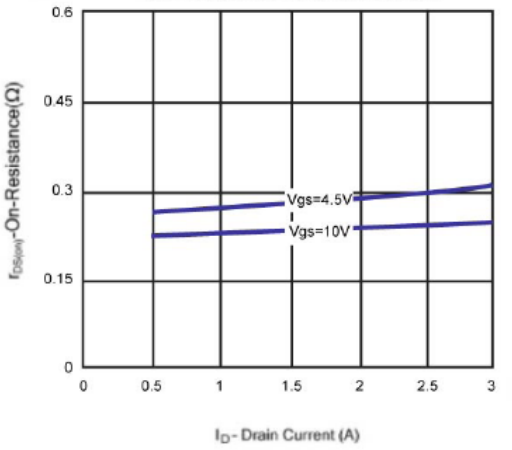
TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Typical Characteristics (T_J =25℃ Noted)

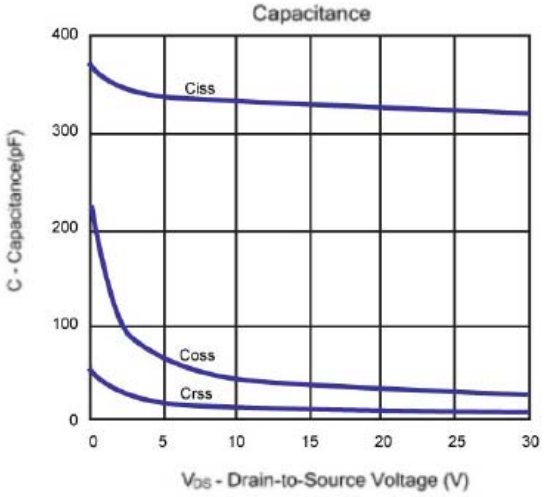
On Resistance vs. Junction Temperature



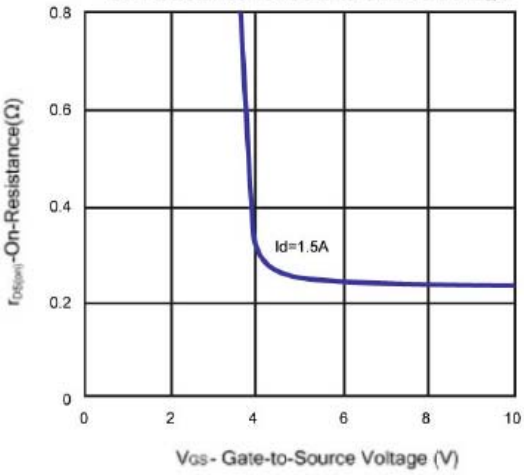
On-Resistance vs. Drain Current



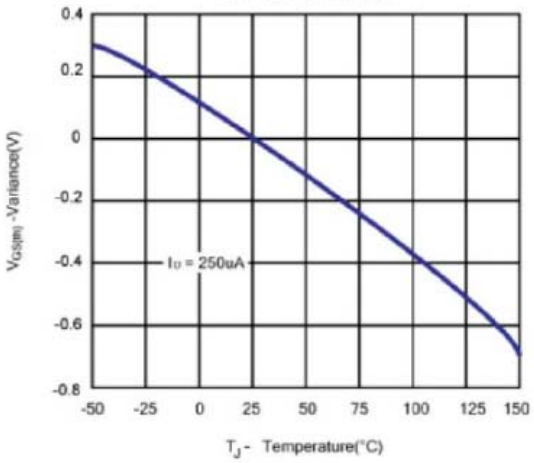
Capacitance



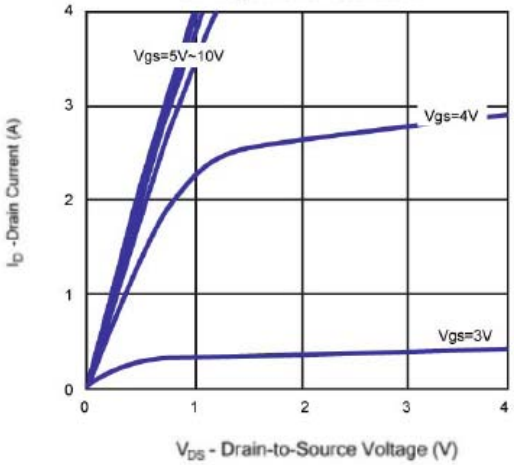
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



On-Region Characteristics



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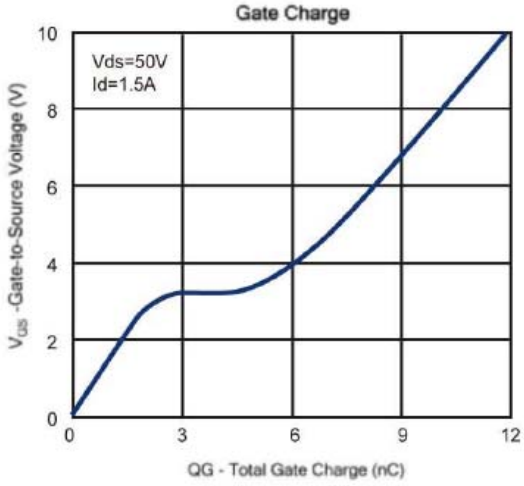
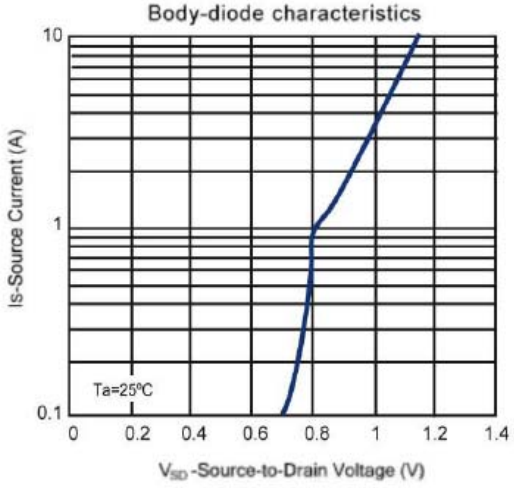
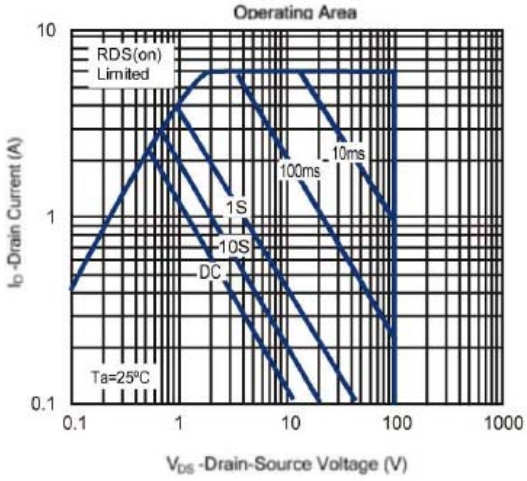
Gate Charge



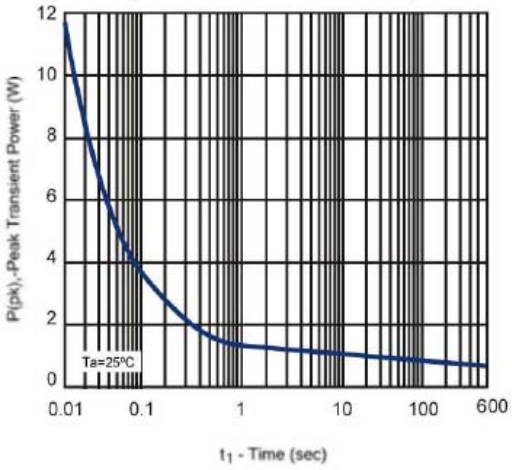
Body-diode characteristics



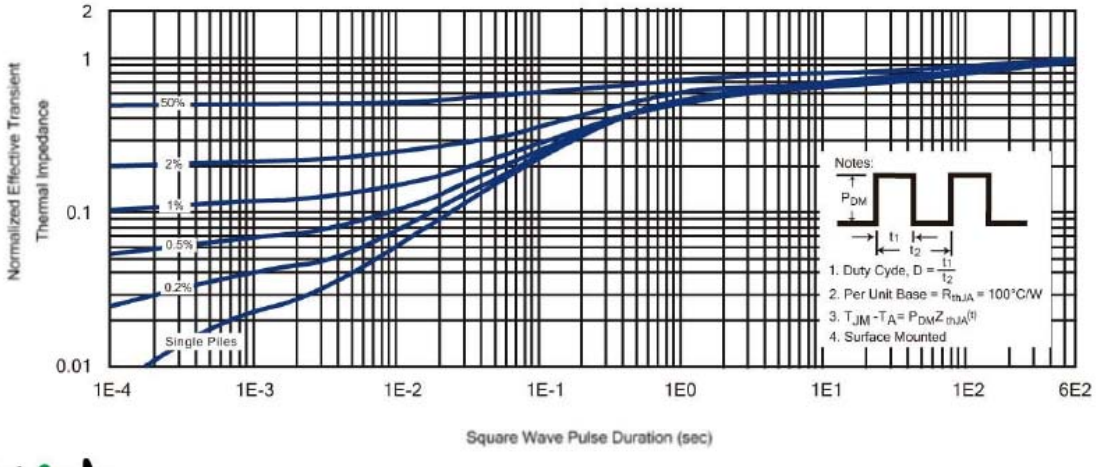
Maximum Forward Biased Safe Operating Area



Single Pulse Maximum Power Dissipation



Normalized Thermal Transient Impedance, Junction-to-Ambient



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PACKAGE OUTLINE

Plastic surface mounted package

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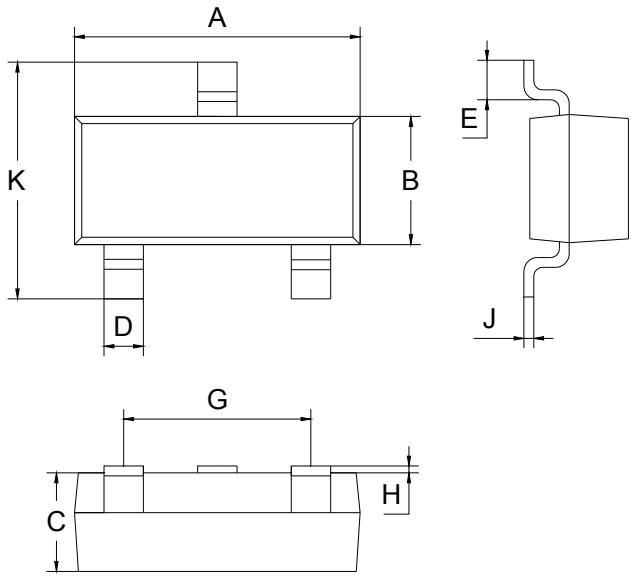
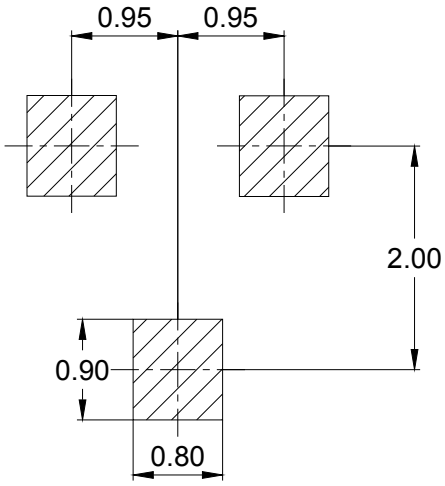


SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
2308	SOT-23	3000/Tape&Reel