General Description

This MOSFET uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. This device is suitable for use as a wide variety of applications.

Features

- Reliable and Rugged
- Lead free product is acquired
- High Power and current handing capability

RoHS compliant

Applications

- Load switch
- PWM applications

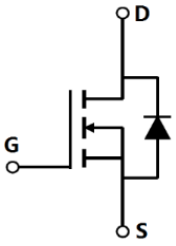
Key Performance Parameters

Parameter	Value	Unit
V_{DS}	30	V
$R_{DS(ON),\ max}$ @ V_{GS}=10V	30	mΩ

Marking Information

Product Name	Package	Marking
OSH3404	SOT-23	3404

Package & Pin information



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Absolute Maximum Ratings at T_j=25°C unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	30	V
Gate-source voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	5.8	A
Pulsed Drain Current [1]	$I_{D,pulse}$	20	A
Power Dissipation [2]	P_D	1.5	W
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-ambient [2]	$R_{\theta JA}$	89	°C/W

Electrical Characteristics at T_j=25°C unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	30			V	V_{GS}=0 V, I_D=250 μA
Gate threshold voltage	$V_{GS(th)}$	1		3	V	V_{DS}=V_{GS}, I_D=250 μA
Drain-source on-state resistance	$R_{DS(ON)}$		23	30	mΩ	V_{GS}=10 V, I_D=5.8 A
Drain-source on-state resistance	$R_{DS(ON)}$		31	42	mΩ	V_{GS}=4.5 V, I_D=5 A
Drain-source on-state resistance	$R_{DS(ON)}$		36	55	mΩ	V_{GS}=2.5 V, I_D=4 A
Gate-source leakage current	I_{GSS}			±100	nA	V_{GS}=±20 V, V_{DS}=0 V
Drain-source leakage current	I_{DSS}			1	μA	V_{DS}=30 V, V_{GS}=0 V

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Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		486		pF	V_{GS}=0 V, V_{DS}=15 V, f=1 MHz
Output capacitance	C_{oss}		66		pF	
Reverse transfer capacitance	C_{rss}		54		pF	
Turn-on Delay Time	$t_{d(on)}$		5		ns	V_{GS}=10 V, V_{DS}=15 V, R_L=3 Ω, R_{GEN}=3 Ω
Turn-on Rise Time	t_r		3		ns	
Turn-Off Delay Time	$t_{d(off)}$		15		ns	
Turn-Off Fall Time	t_f		3.5		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		12.6		nC	V_{GS}=10 V, V_{DS}=15 V, I_D=5.8 A
Gate-source charge	Q_{gs}		1.9		nC	
Gate-drain charge	Q_{gd}		2.6		nC	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Source drain current (Body Diode)	I_{SD}			5.8	A	T_A=25°C
Diode forward voltage	V_{SD}			1.2	V	I_S=5.8 A, V_{GS}=0 V

Note:

1) Pulse width limited by maximum allowable junction temperature

2) The value of P_D&$R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz.Copper, double sided, in a still air environment with Ta=25℃.

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Electrical Characteristics Diagrams

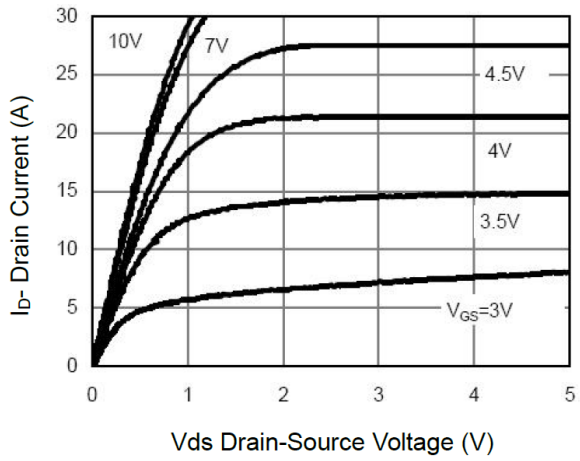

Figure 1. Typ. output characteristics

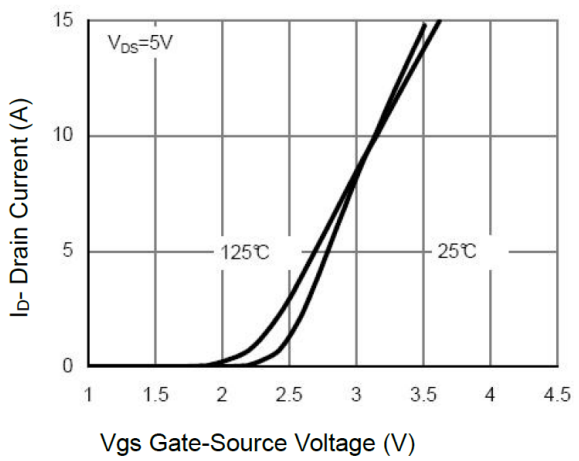

Figure 2. Typ. transfer characteristics

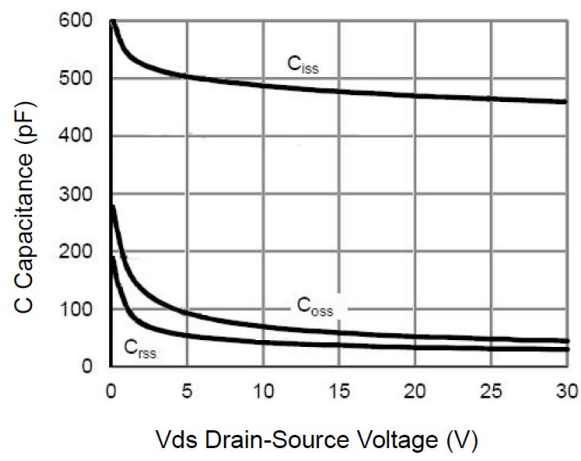

Figure 3. Capacitance

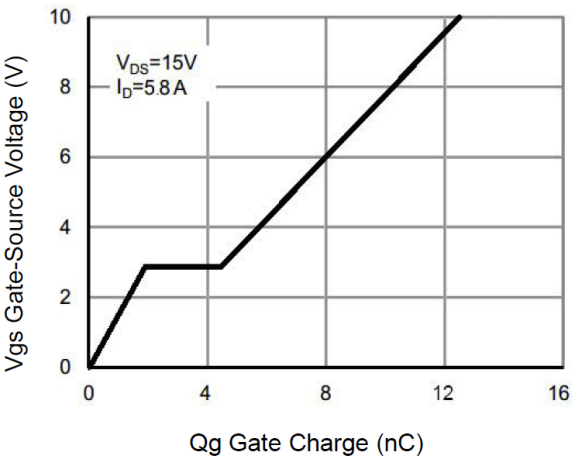

Figure 4. Gate charge

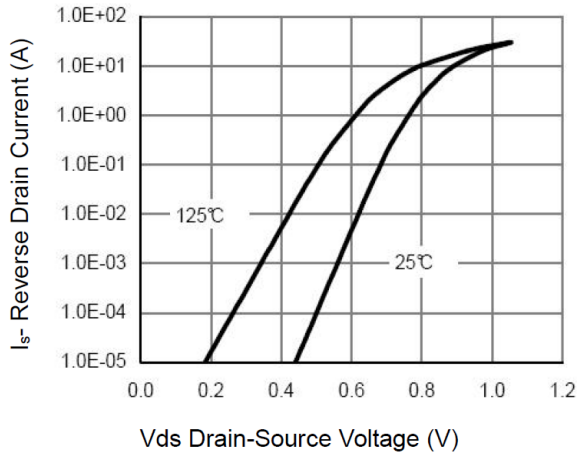

Figure 5. Body-diode characteristics

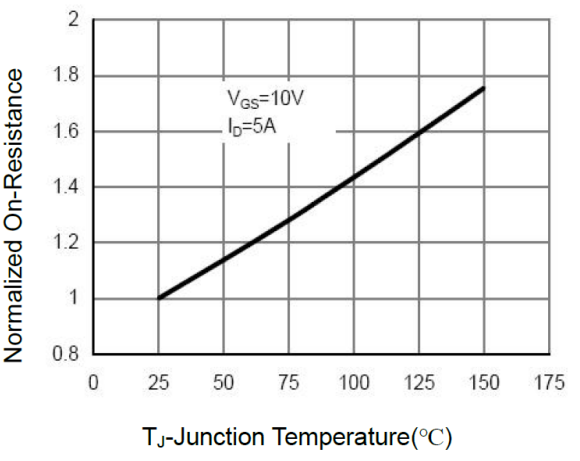

Figure 6. $R_{DS(ON)}$ vs junction temperature

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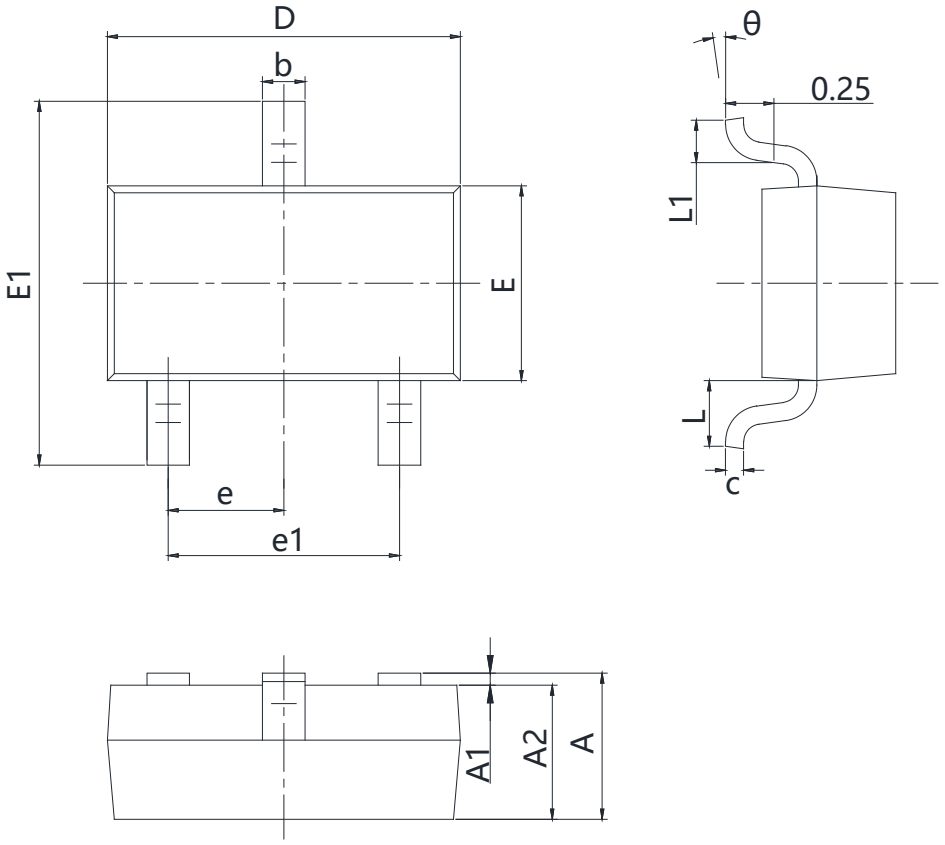
Package Information



Symbol	mm	
	Min	Max
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	0.280	3.000
E	1.200	1.400
e	0.950 TYP	
e1	1.800	2.000
L	0.550 REF	
L1	0.300	0.500
L2	-	1.750
θ	0°	8°

Version : SOT-23-V package outline dimension

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Ordering Information

Package Type	Units/ Reel	Reels/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
SOT-23	3000	15	45000	4	180000

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