General Description

This MOSFET uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a battery protection or in other switching application.

Features

- Low gate charge
- High power and current handing capability
- Lead free product is acquired

RoHS compliant

Applications

- Load switch
- Battery protection
- Power management

Key Performance Parameters

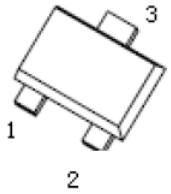
Parameter	Value	Unit
V_{DS}	20	V
$R_{DS(ON),\ max}$ @ V_{GS}=4.5 V	330	mΩ

Marking Information

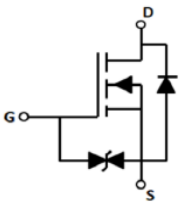
Product Name	Package	Marking
OSH3134KT	SOT-523	34K

Package & Pin information

SOT-523



1. GATE
2. SOURCE
3. DRAIN



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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	20	V
Gate-source voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	0.75	A
Pulsed Drain Current [1)]	$I_{D,pulse}$	3.0	A
Power Dissipation	P_D	310	mW
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-to-Ambient	$R_{\theta JA}$	400	°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}	20			V	V_{GS}=0 V, I_D=250 μA
Gate threshold voltage	$V_{GS(th)}$	0.35		1.1	V	V_{DS}=V_{GS}, I_D=250 μA
Drain-source on-state resistance	$R_{DS(ON)}$		220	330	mΩ	V_{GS}=4.5 V, I_D=0.5 A
			300	480	mΩ	V_{GS}=2.5 V, I_D=0.3 A
			450	800	mΩ	V_{GS}=1.8 V, I_D=0.25 A
Gate-source leakage current	I_{GSS}			10	μA	V_{GS}=10 V, V_{DS}=0 V
				-10		V_{GS}=-10 V, V_{DS}=0 V
Drain-source leakage current	I_{DSS}			1	μA	V_{DS}=20 V, V_{GS}=0 V

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		24		pF	V_{GS}=0 V, V_{DS}=16 V, f=1.0 MHz
Output capacitance	C_{oss}		7.5		pF	
Reverse transfer capacitance	C_{rss}		3		pF	
Turn-on Delay Time	$t_{d(on)}$		6.7		ns	V_{GS}=4.5 V, V_{DD}=10 V, I_D=0.5 A, R_{GEN}=10 Ω
Turn-on Rise Time	t_r		4.8		ns	
Turn-Off Delay Time	$t_{d(off)}$		17.3		ns	
Turn-Off Fall Time	t_f		7.4		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total Gate Charge	Q_g		0.4		nC	V_{GS}=4.5 V, V_{DS}=5 V, I_D=0.5 A
Gate-Source Charge	Q_{gs}		0.1		nC	
Gate-Drain Charge	Q_{gd}		0.15		nC	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Source drain current (Body Diode)	I_{SD}			0.75	A	T_A=25°C
Diode forward voltage [2]	V_{SD}			1.2	V	I_S=0.75 A, V_{GS}=0 V

Note: 1) Pulse width limited by maximum allowable junction temperature.

2) Repetitive Rating: Pulse width limited by maximum junction temperature.

Electrical Characteristics Diagrams

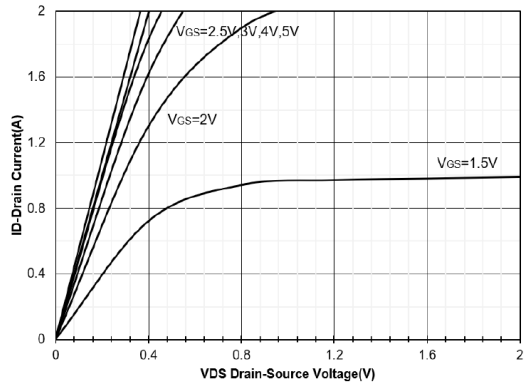


Figure 1. Typ. output characteristics

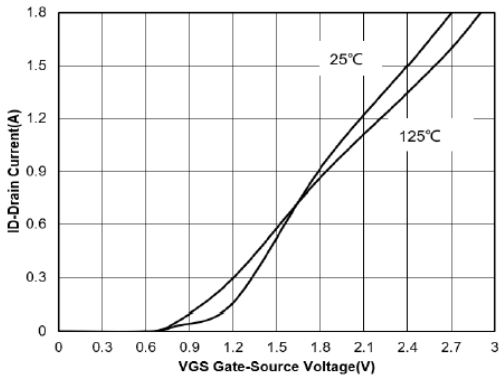


Figure 2. Typ. transfer characteristics

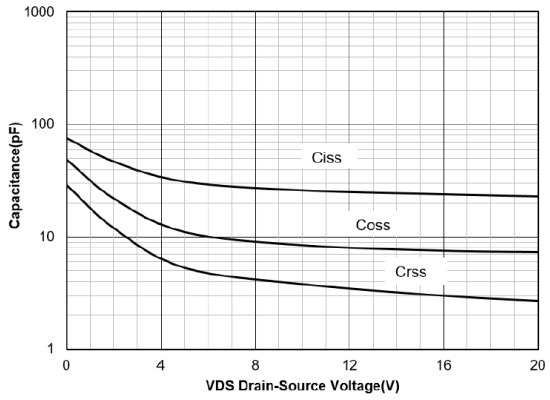


Figure 3. Typ. capacitances

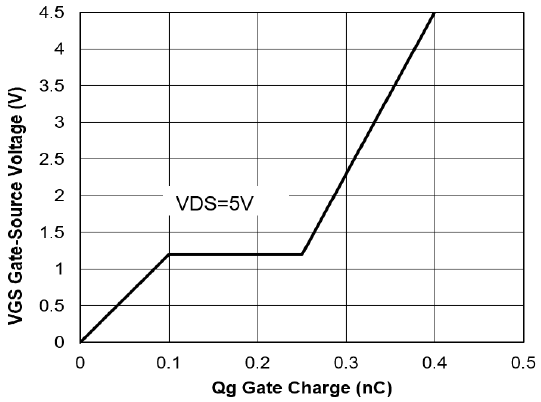


Figure 4. Gate charge

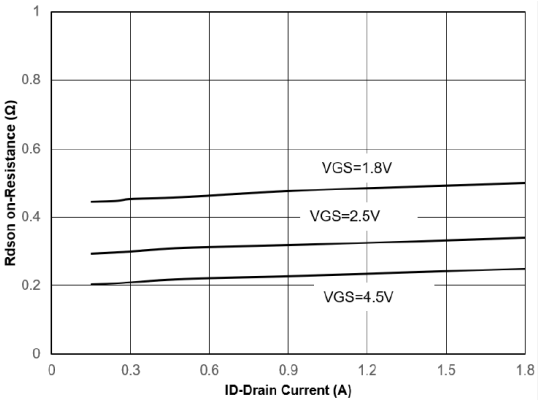


Figure 5. Drain-Source on Resistance

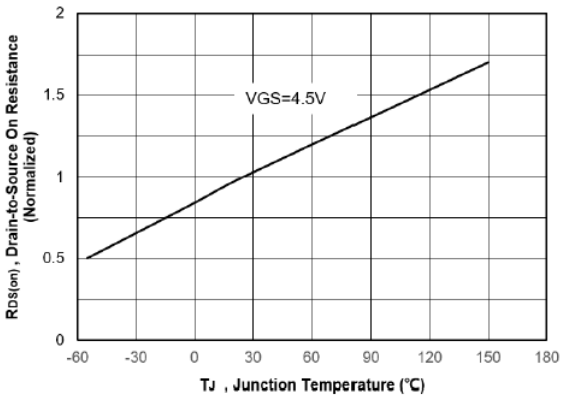
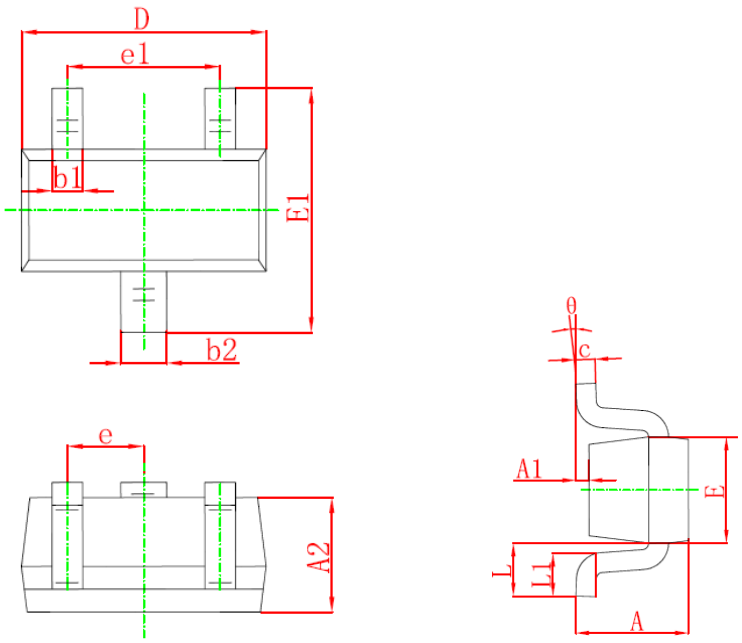


Figure 6. $R_{DS(ON)}$ vs junction temperature

Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Version: SOT-523-V package outline dimension

Ordering Information

Package Type	Units/ Reel	Reels/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
SOT-523	3000	10	30000	4	120000

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