

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

Applications

- Load switch
- Battery protection
- Power management



Key Performance Parameters

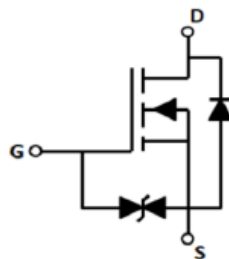
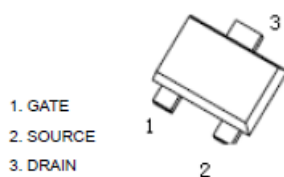
Parameter	Value	Unit
V_{DS}	20	V
$R_{DS(ON), max} @ V_{GS}=4.5V$	250	mΩ

Marking Information

Product Name	Package	Marking
OSH3134M	SOT-723	34K

Package & Pin information

SOT-723



Absolute Maximum Ratings at $T_J=25^{\circ}\text{C}$ unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	20	V
Gate-source voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	0.8	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	$^{\circ}\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-to-Ambient	$R_{\theta JA}$	400	$^{\circ}\text{C/W}$

Electrical Characteristics at $T_J=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	20			V	$V_{GS}=0\text{ V}, I_D=250\text{ }\mu\text{A}$
Gate threshold voltage	$V_{GS(th)}$	0.35	0.75	1.1	V	$V_{DS}=V_{GS}, I_D=250\text{ }\mu\text{A}$
Drain-source on-state resistance	$R_{DS(ON)}$		190	250	$\text{m}\Omega$	$V_{GS}=4.5\text{ V}, I_D=0.5\text{ A}$
Drain-source on-state resistance	$R_{DS(ON)}$		275	358	$\text{m}\Omega$	$V_{GS}=2.5\text{ V}, I_D=0.3\text{ A}$
Gate-source leakage current	I_{GSS}			10	μA	$V_{GS}=10\text{ V}, V_{DS}=0\text{ V}$
				-10		$V_{GS}=-10\text{ V}, V_{DS}=0\text{ V}$
Drain-source leakage current	I_{DSS}			1	μA	$V_{DS}=20\text{ V}, V_{GS}=0\text{ V}$

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		29.5		pF	$V_{GS}=0\text{ V}$, $V_{DS}=16\text{ V}$, $f=1.0\text{ MHz}$
Output capacitance	C_{oss}		8.9		pF	
Reverse transfer capacitance	C_{rss}		4.3		pF	
Turn-on Delay Time	$t_{d(on)}$		6		ns	$V_{GS}=4.5\text{ V}$, $V_{DD}=10\text{ V}$, $I_D=0.5\text{ A}$, $R_{GEN}=10\text{ }\Omega$
Turn-on Rise Time	t_r		4		ns	
Turn-Off Delay Time	$t_{d(off)}$		15		ns	
Turn-Off Fall Time	t_f		8		ns	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Source drain current (Body Diode)	I_{SD}			0.8	A	$T_A=25^\circ\text{C}$
Diode forward voltage ²⁾	V_{SD}			1.2	V	$I_S=0.8\text{ A}$, $V_{GS}=0\text{ V}$

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

Electrical Characteristics Diagrams

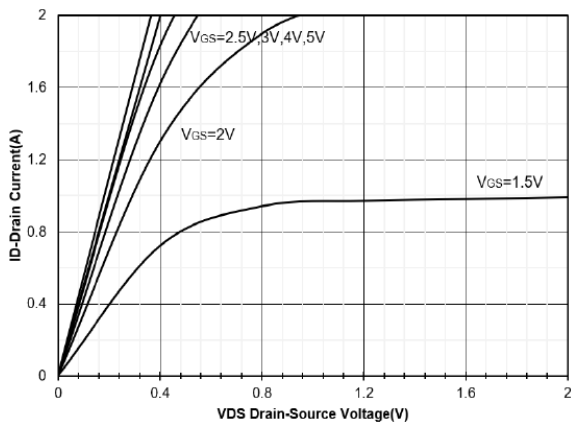


Figure 1. Typ. output characteristics

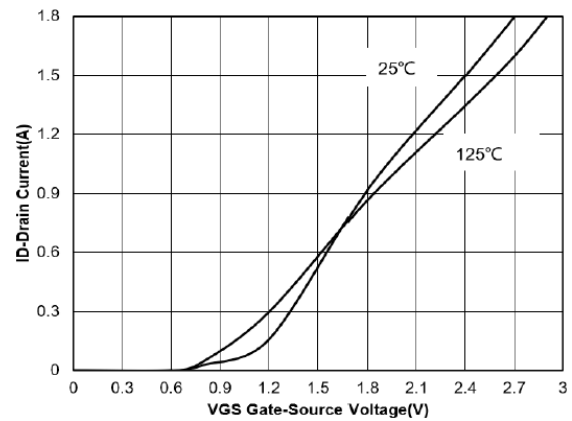


Figure 2. Typ. transfer characteristics

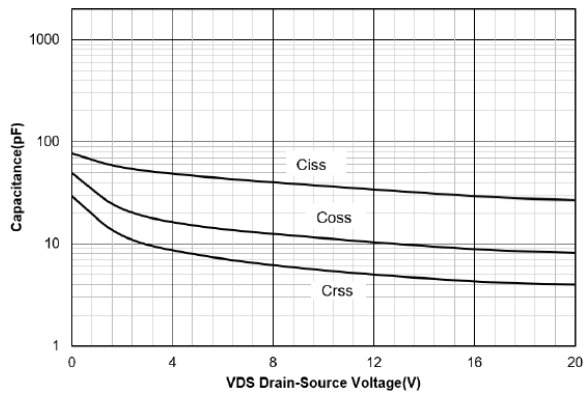


Figure 3. Typ. capacitances

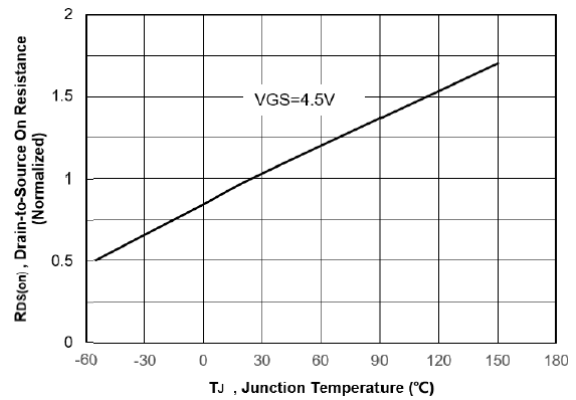


Figure 4. $R_{DS(ON)}$ vs junction temperature

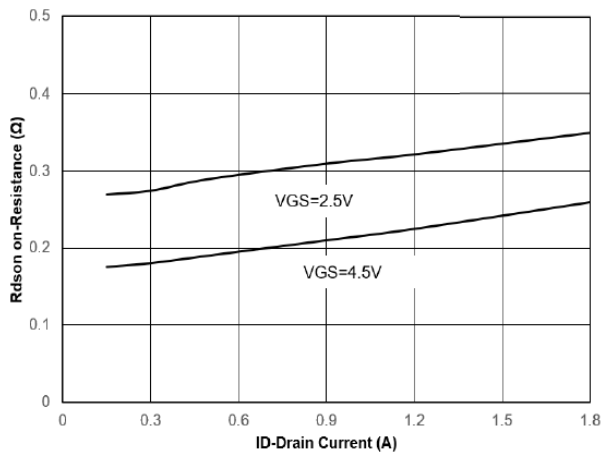


Figure 5. Drain-Source on Resistance

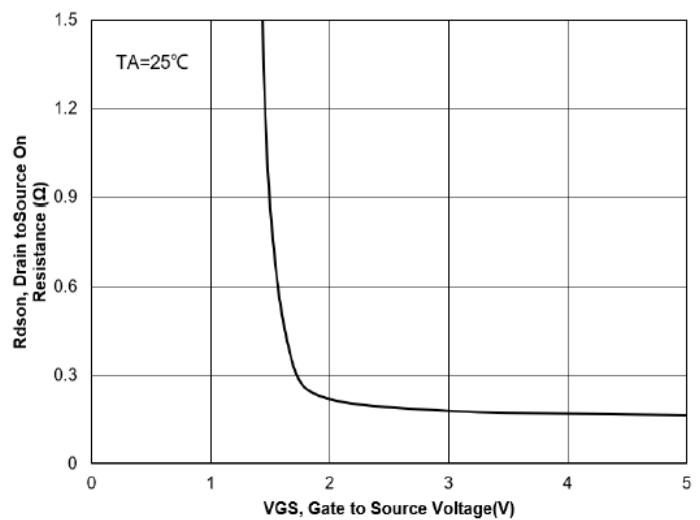
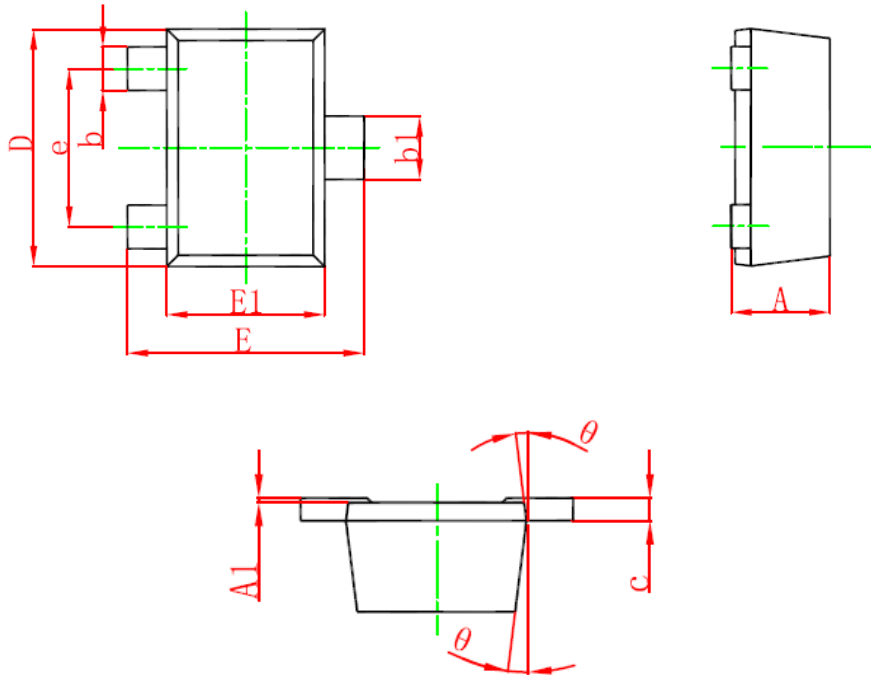
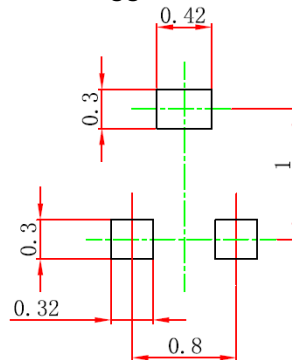


Figure 6. Drain-Source on Resistance
vs gate voltage

Package Information



SOT-723 Suggested Pad Layout



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.320	0.400	0.013	0.016
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

Version: SOT-723-V package outline dimension

Ordering Information

Package Type	Units/ Reel	Reels/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
SOT-723	8000	10	80000	4	320000

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