- Fast Switching Speed
- Super Low Gate Charge
- High-Side Switching
- Low Threshold
- ESD Protected up to 2KV

Product Summary

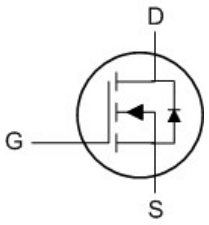
BVDSS	RDSON	ID
20V	280 mΩ	0.9A

Description

The MTE3134K is the high cell density trenched N-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

The MTE3134K meets the RoHS and Green Product requirement with full function reliability approved.

SOT523 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±8	V
I_D@T_A=25°C	Continuous Drain Current, V_{GS} @ 4.5V[1]	0.9	A
I_D@T_A=70°C	Continuous Drain Current, V_{GS} @ 4.5V[1]	0.6	A
I_{DM}	Pulsed Drain Current[2]	4	A
P_D@T_A=25°C	Total Power Dissipation[3]	0.25	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient [1]	---	500	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	---	300	°C/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance2	V_{GS}=4.5V , I_D=800mA	---	280	400	mΩ
		V_{GS}=2.5V , I_D=500mA	---	350	500	
		V_{GS}=1.8V , I_D=300mA	---	650	800	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	0.5	0.7	1	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=20V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=20V , V_{GS}=0V , T_J=55℃	---	---	5	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±10V , V_{DS}=0V	---	---	±10	uA
gfs	Forward Transconductance	V_{DS}=10V , I_D=800mA	---	10.7	---	S
Q_g	Total Gate Charge (4.5V)	V_{DS}=10V , V_{GS}=4.5V , I_D=550mA	---	4.8	---	nC
Q_{gs}	Gate-Source Charge		---	2.5	---	
Q_{gd}	Gate-Drain Charge		---	0.8	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=10V , V_{GS}=4.5V , R_G=10Ω I_D=500mA	---	10	---	ns
T_r	Rise Time		---	3.9	---	
$T_{d(off)}$	Turn-Off Delay Time		---	26	---	
T_f	Fall Time		---	4.8	---	
C_{iss}	Input Capacitance	V_{DS}=6V , V_{GS}=0V , f=1MHz	---	480	---	pF
C_{oss}	Output Capacitance		---	107	---	
C_{rss}	Reverse Transfer Capacitance		---	72	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current1,4	V_G=V_D=0V , Force Current	---	---	0.9	A
V_{SD}	Diode Forward Voltage2	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1.2	V

Note :
1.The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The power dissipation is limited by 150℃ junction temperature
4.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

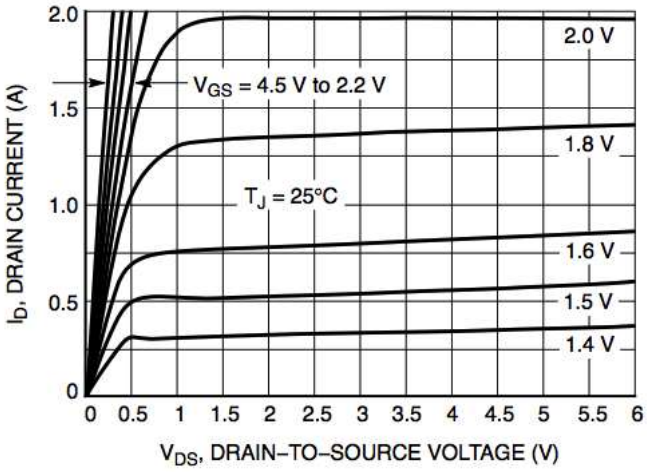


Figure 1. On–Region Characteristics

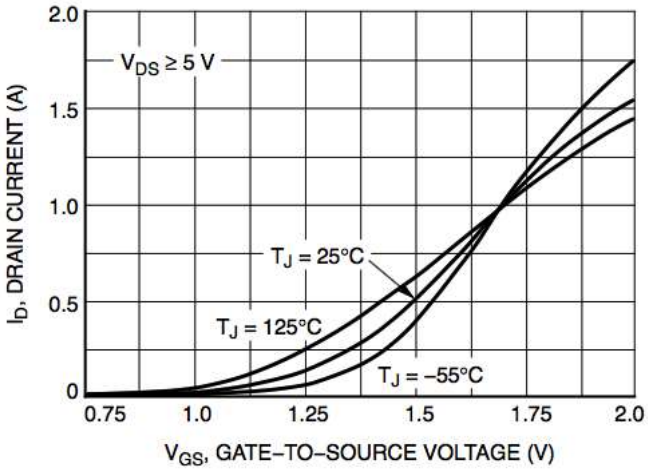


Figure 2. Transfer Characteristics

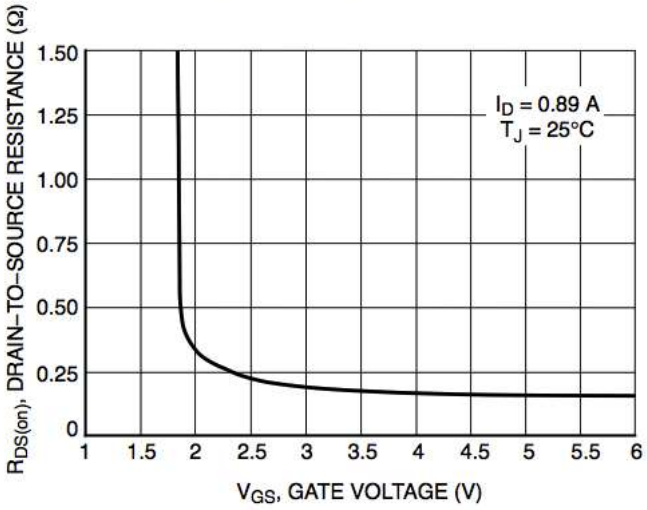


Figure 3. On–Resistance vs. Gate–to–Source Voltage

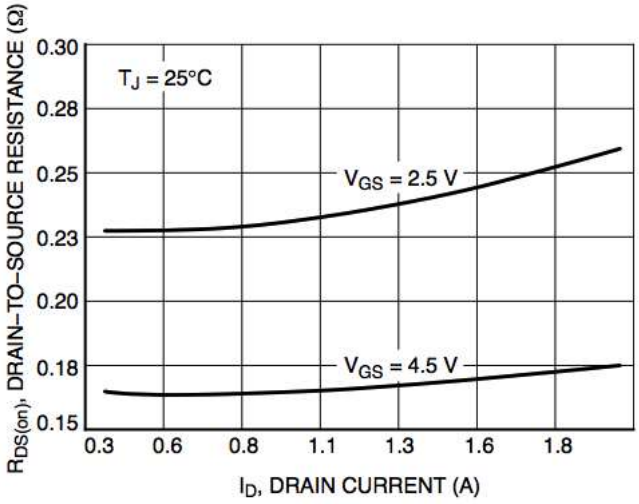


Figure 4. On–Resistance vs. Drain Current and Gate Voltage

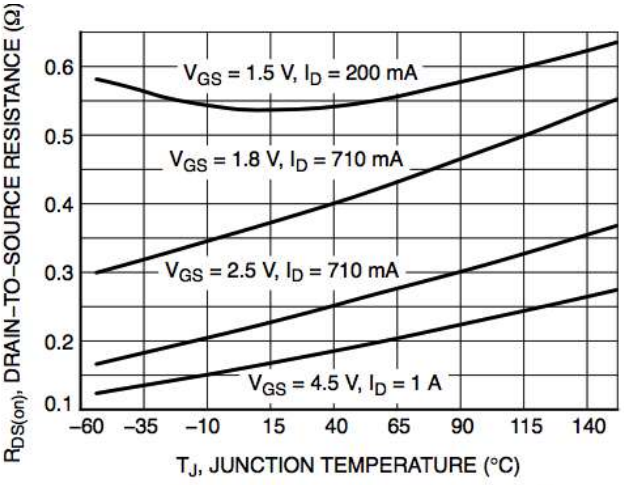


Figure 5. On–Resistance Variation with Temperature

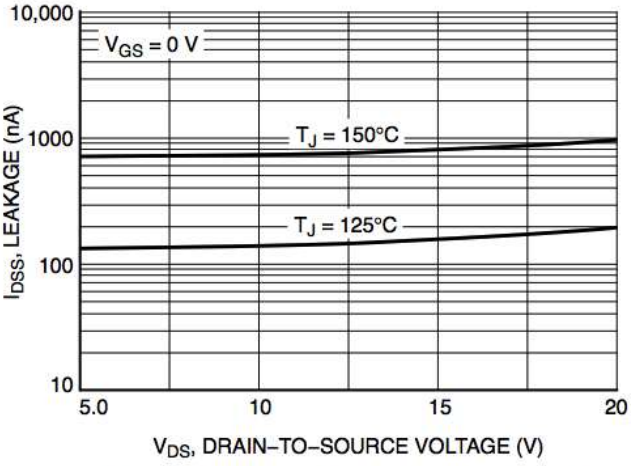


Figure 6. Drain–to–Source Leakage Current vs. Voltage

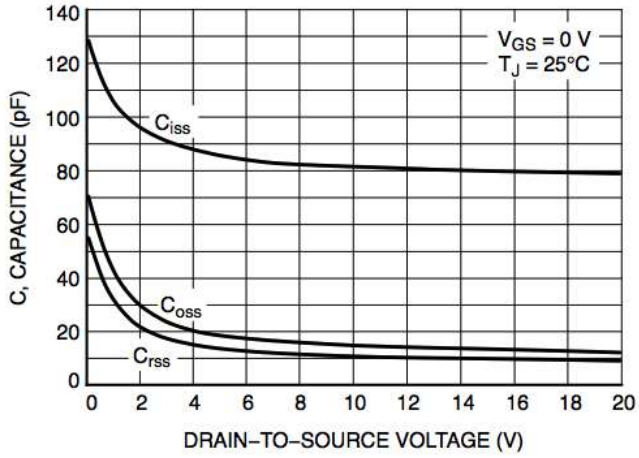


Figure 7. Capacitance Variation

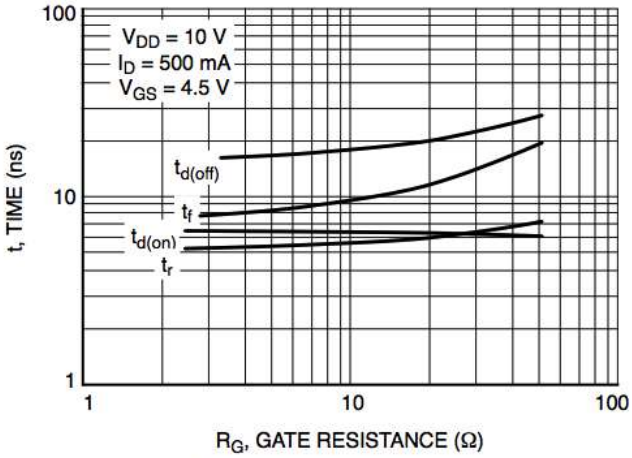


Figure 8. Resistive Switching Time Variation vs. Gate Resistance

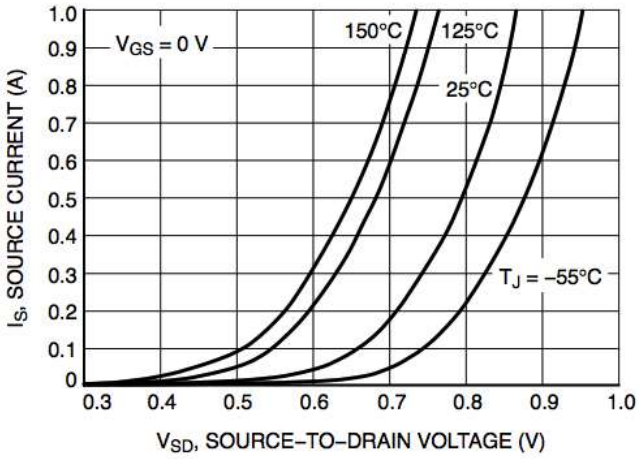
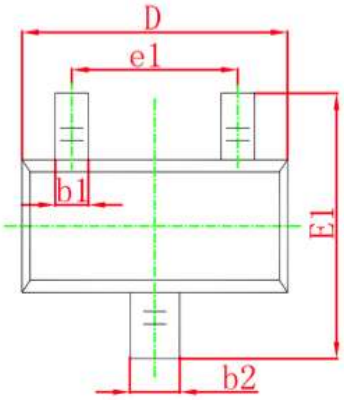
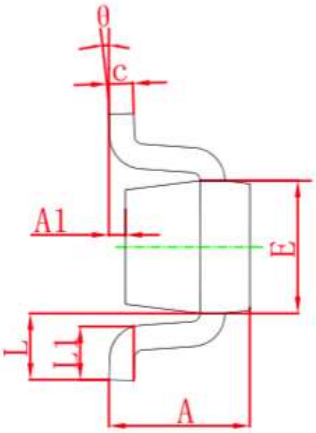
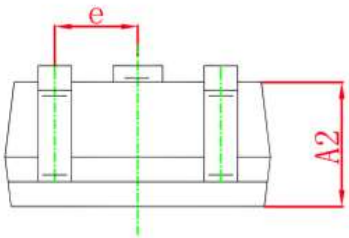


Figure 9. Diode Forward Voltage vs. Current

SOT523 Pin Configuration







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°