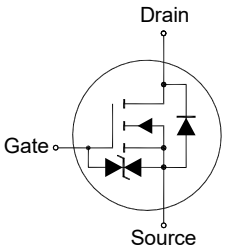
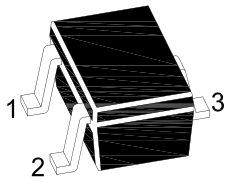
MMFTN3019E

N-Channel Enhancement Mode MOSFET

Features

- Low on-resistance
- Fast switching speed
- Low voltage drive makes this device ideal for portable equipment
- Drive circuits can be simple
- Parallel use is easy





1.Gate 2.Source 3.Drain
SOT-523 Plastic Package

Applications

- Portable appliances

Absolute Maximum Ratings (T_a = 25℃)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	I_D	100	mA
Peak Drain Current, Pulsed [1)]	I_{DM}	400	mA
Total Power Dissipation [2)]	P_{tot}	150	mW
Junction temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	- 55 to + 150	℃

[1)] P_W ≤ 100 µs, Duty cycle ≤ 1 %, limited $T_{j(max)}$ = 150℃.

[2)] Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.

Dated: 23/06/2020 SLD1 Rev: 03

Characteristics at T_a = 25℃

Parameter	Symbol	Min.	Typ.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Breakdown Voltage at I_D = 10 µA	$V_{(BR)DSS}$	30	-	-	V
Zero Gate Voltage Drain Current at V_{DS} = 30 V	I_{DSS}	-	-	1	µA
Gate-source Leakage at V_{GS} = ± 20 V	I_{GSS}	-	-	± 1	µA
Gate-Source Threshold Voltage at V_{DS} = V_{GS}, I_D = 100 µA	$V_{GS(th)}$	0.8	-	1.5	V
Static Drain-Source On-Resistance at V_{GS} = 4 V, I_D = 10 mA at V_{GS} = 2.5 V, I_D = 1 mA	$R_{DS(on)}$	- -	- -	8 13	Ω
DYNAMIC PARAMETERS					
Forward transfer admittance at V_{DS} = 3 V, I_D = 10 mA	g_{fs}	20	47	-	ms
Gate resistance at f = 1 MHz	R_g	-	83	-	Ω
Input Capacitance at V_{DS} = 5 V, V_{GS} = 0 V, f = 1 MHz	C_{iss}	-	19.7	-	pF
Output Capacitance at V_{DS} = 5 V, V_{GS} = 0 V, f = 1 MHz	C_{oss}	-	16	-	pF
Reverse Transfer Capacitance at V_{DS} = 5 V, V_{GS} = 0 V, f = 1 MHz	C_{rss}	-	10	-	pF
Turn-On Delay Time at V_{DS} =5 V, V_{GS} = 5 V, I_D = 10 mA, R_G = 10 Ω	$t_{d(on)}$	-	17	-	ns
Turn-On Rise Time at V_{DS} =5 V, V_{GS} = 5 V, I_D = 10 mA, R_G = 10 Ω	t_r	-	16.6	-	ns
Turn-Off Delay Time at V_{DS} =5 V, V_{GS} = 5 V, I_D = 10 mA, R_G = 10 Ω	$t_{d(off)}$	-	20.2	-	ns
Turn-Off Fall Time at V_{DS} =5 V, V_{GS} = 5 V, I_D = 10 mA, R_G = 10 Ω	t_f	-	88	-	ns
Body-Diode PARAMETERS					
Drain-Source Diode Forward Voltage at I_S = 0.1 A	V_{SD}	-	0.8	1.0	V

Electrical Characteristics Curves

Fig. 1 Output Characteristic

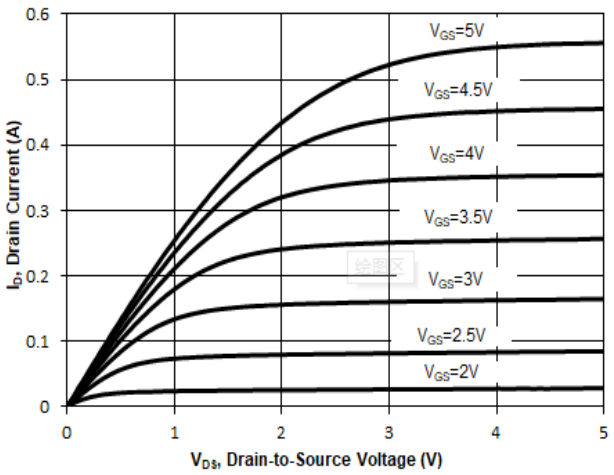


Fig. 2 Transfer Characteristic

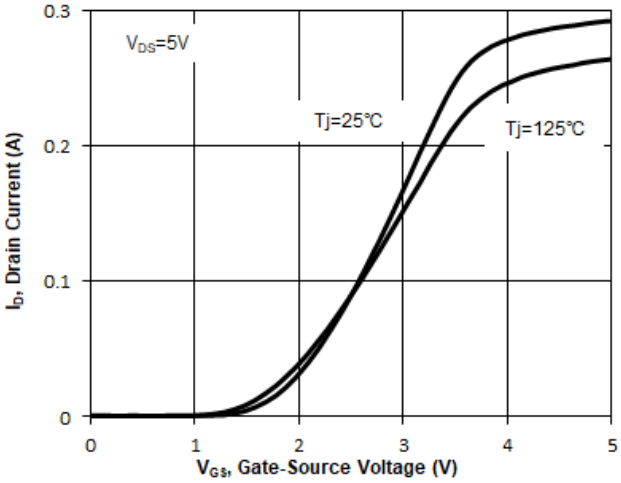


Fig. 3 on-Resistance vs. Drain Current

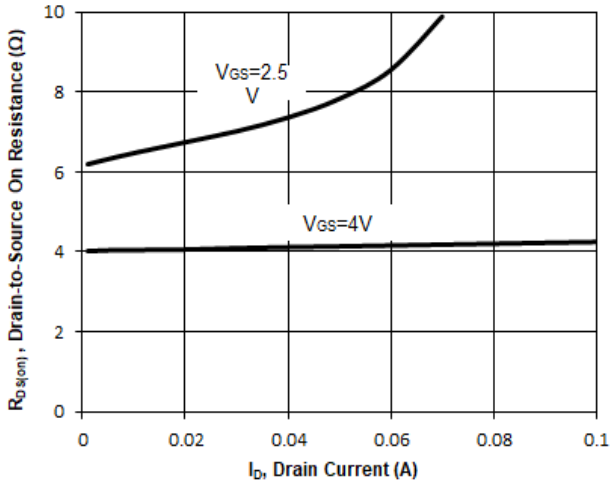


Fig. 4 $R_{DS(on)}$ vs. T_j

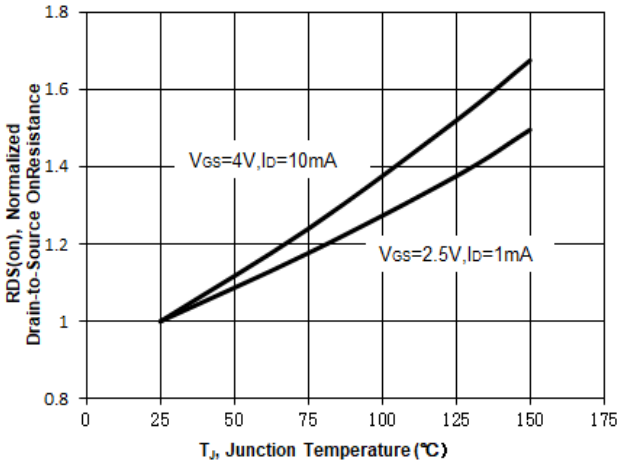


Fig. 5 on-Resistance vs. V_{GS}

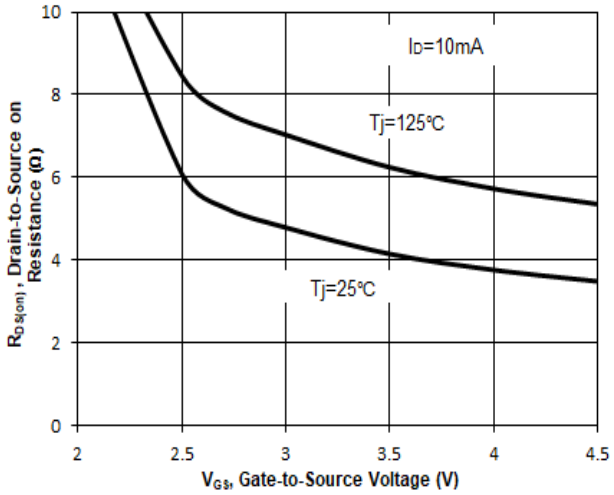
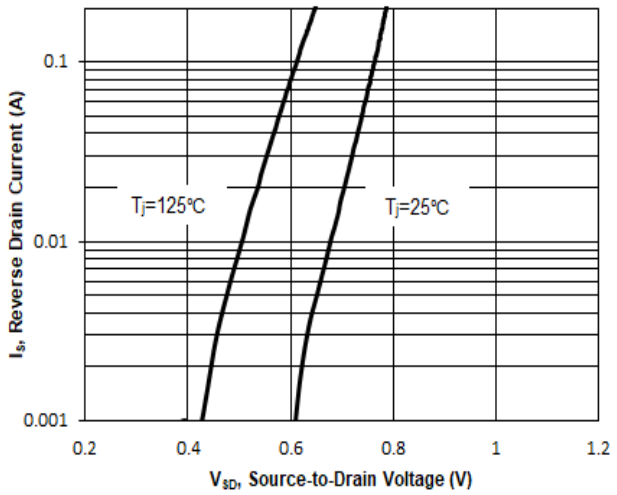


Fig. 6 Body Diode Forward Characteristic



Electrical Characteristics Curves

Fig. 7 $V_{GS(th)}$ vs. Junction Temperature

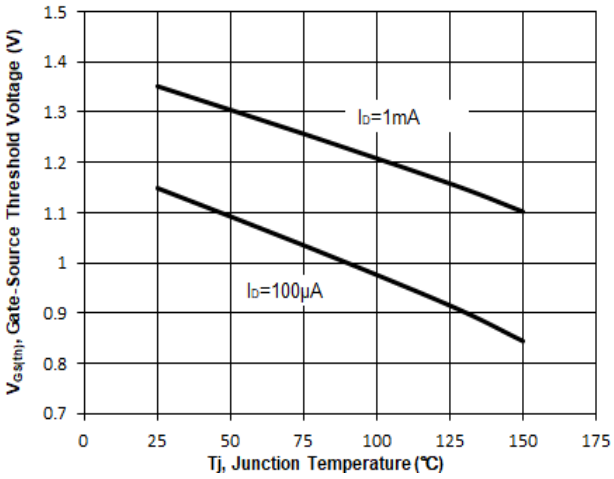


Fig. 8 Drain-Source Leakage Current vs. Tj

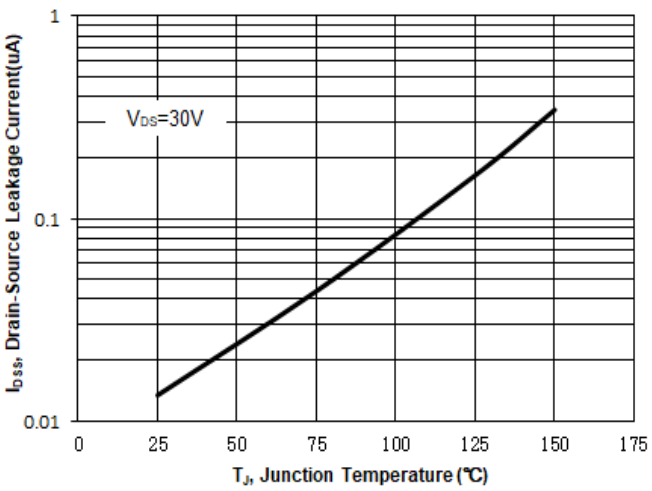


Fig. 9 Drain-Source Breakdown Voltage vs. Tj

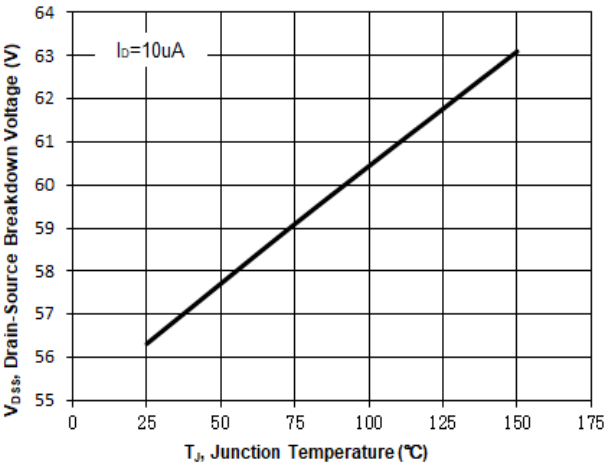
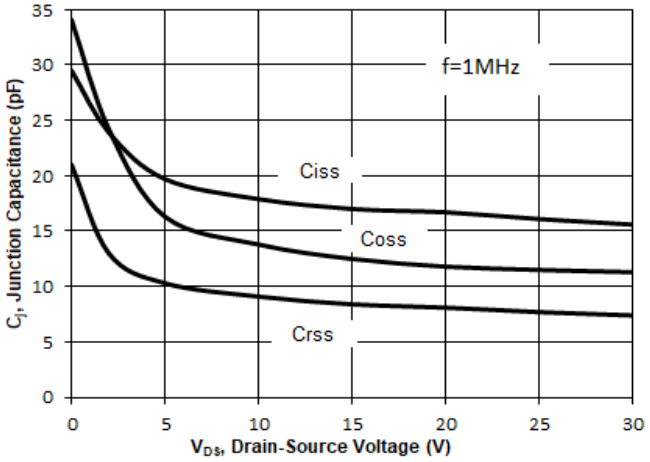
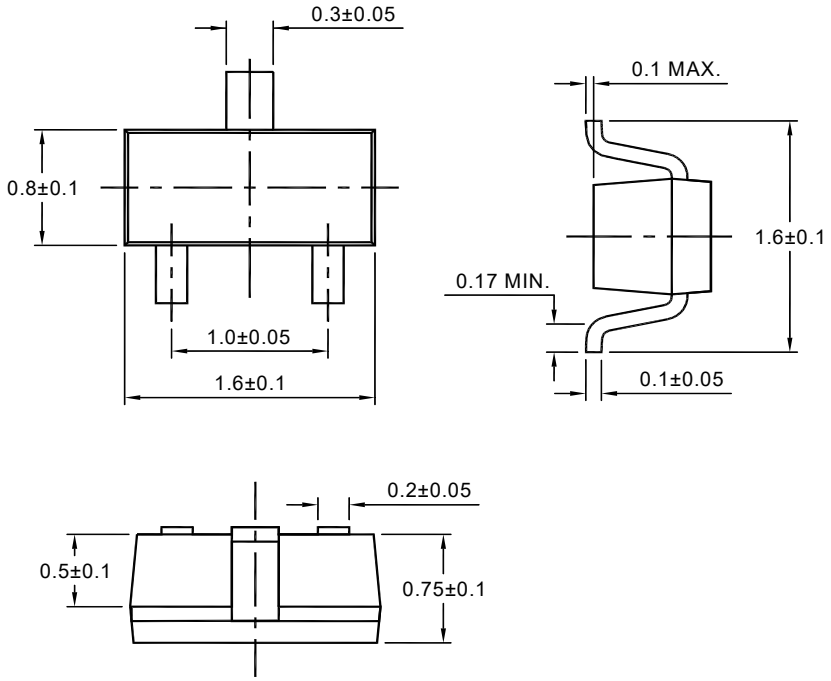


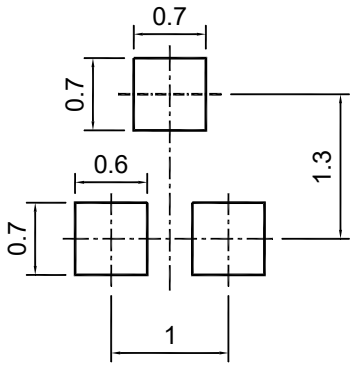
Fig. 10 Capacitance Characteristic



Package Outline (Dimensions in mm) SOT-523



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-523	8	4 ± 0.1	0.157 ± 0.004	178	7	4,000

Marking information

" KN " = Part No.
" YM " = Date Code Marking
" Y " = Year
" M " = Month
Font type: Arial