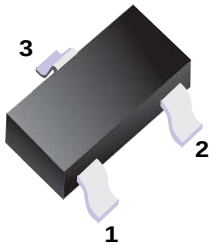
FTK1012C N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX
20 V	380mΩ@4.5V
	620mΩ@2.5V

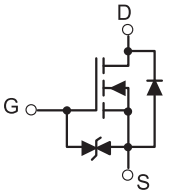


SOT-523

Feature

- High-Side Switching
- Low On-Resistance
- Low Threshold
- Fast Switching Speed
- ESD protected up to 2 KV

Equivalent Circuit



Applications

- Drivers:Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

Absolute Maximum Ratings (T_a = 25℃)

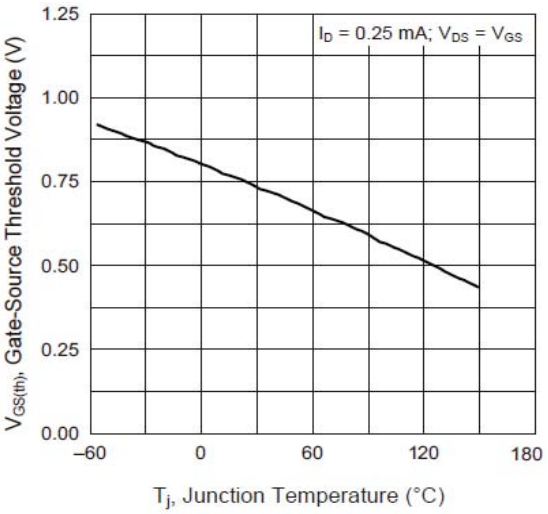
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Drain Current at V_{GS} = 4.5 V T_a = 25℃ / T_a = 100℃	I_D	700 [1] / 440 [1]	mA
Peak Drain Current, Pulsed (tp ≤ 10 μs)	I_{DM}	2.8	A
Power Dissipation	P_D	300 [1]	mW
Maximum Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	510 [2]	℃/W
Junction Temperature Rang	T_j	- 55 to + 150	℃
Storage Temperature Rang	T_{stg}	- 65 to + 150	℃

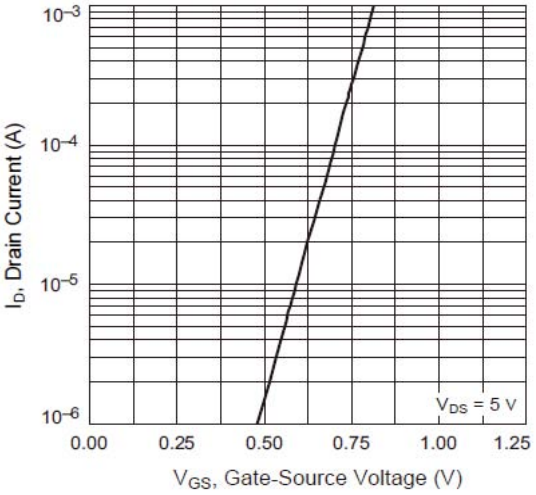
[1] Device mounted on an FR-4 (PCB), single-sided copper, tin-plated, mounting pad for drain 1 cm^2.
[2] Device mounted on an FR-4 (PCB), single-sided copper, tin-plated and standard footprint.

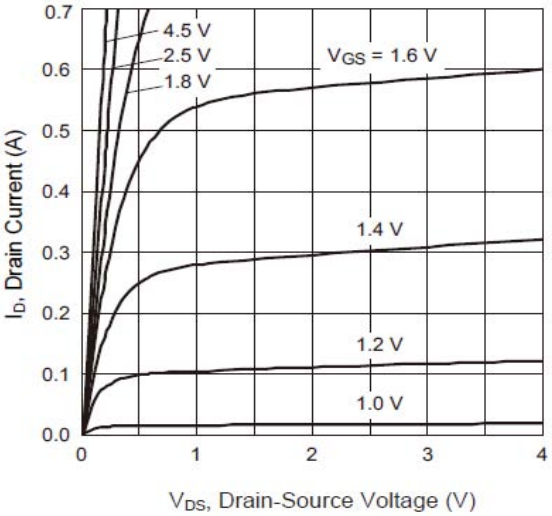
Electrical Characteristics (Ta = 25℃)

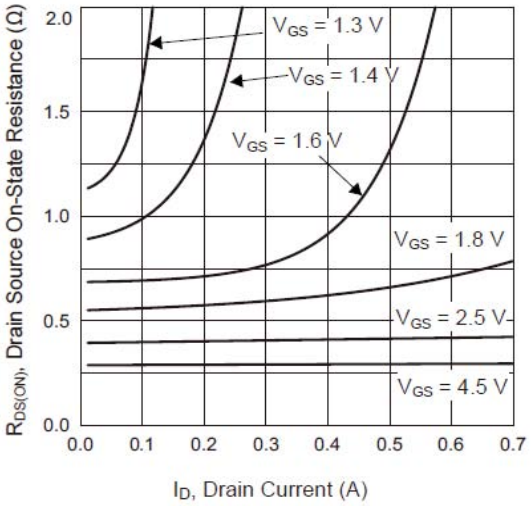
Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at I_D = 250 µA	BV_{DSS}	20	-	-	V
Gate-Source Threshold Voltage at V_{DS} = V_{GS}, I_D = 250 µA	V_{GSth}	0.5	-	0.95	V
Drain-Source Leakage Current at V_{DS} = 20 V	I_{DSS}	-	-	1	µA
Gate Leakage Current at V_{GS} = ± 8 V at V_{GS} = ± 4.5 V	I_{GSS}	- -	- -	± 2 ± 0.5	µA
Drain-Source On-State Resistance at V_{GS} = 4.5 V, I_D = 0.5 A at V_{GS} = 2.5 V, I_D = 0.4 A at V_{GS} = 1.8 V, I_D = 0.1 A	$R_{DS(on)}$	- - -	- - -	380 620 1100	mΩ
Forward Transconductance at V_{DS} = 10 V, I_D = 0.2 A	$\lvert g_{FS} \rvert$	-	1.6	-	S
Input Capacitance at V_{GS} = 0 V, V_{DS} = 10 V, f = 1 MHz	C_{iss}	-	-	83	pF
Output Capacitance at V_{GS} = 0 V, V_{DS} = 10 V, f = 1 MHz	C_{oss}	-	15	-	pF
Reverse Transfer Capacitance at V_{GS} = 0 V, V_{DS} = 10 V, f = 1 MHz	C_{rss}	-	7	-	pF
Turn-On Delay Time at V_{GS} = 4.5 V, V_{DS} = 10 V, R_L = 250 Ω, R_G = 6 Ω	t_{on}	-	-	12	ns
Turn-On Rise Time at V_{GS} = 4.5 V, V_{DS} = 10 V, R_L = 250 Ω, R_G = 6 Ω	t_r	-	4	-	ns
Turn-Off Delay Time at V_{GS} = 4.5 V, V_{DS} = 10 V, R_L = 250 Ω, R_G = 6 Ω	t_{off}	-	-	172	ns
Turn-Off Fall Time at V_{GS} = 4.5 V, V_{DS} = 10 V, R_L = 250 Ω, R_G = 6 Ω	t_{off}	-	31	-	ns
Diode Forward Voltage at I_S = 0.3 A, V_{GS} = 0 V	V_{SD}	0.48	-	1.2	V

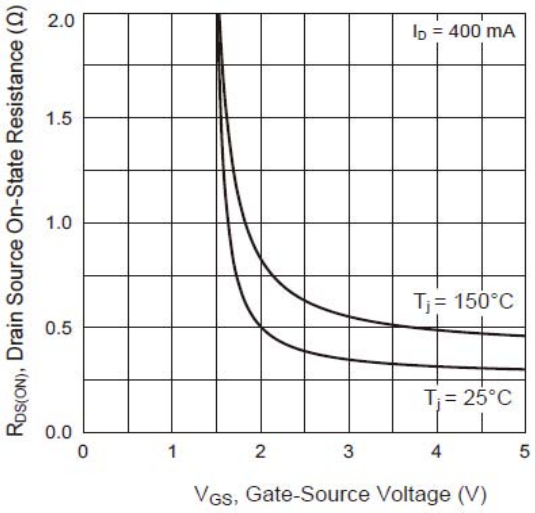
ELECTRICAL CHARACTERISTICS CURVES



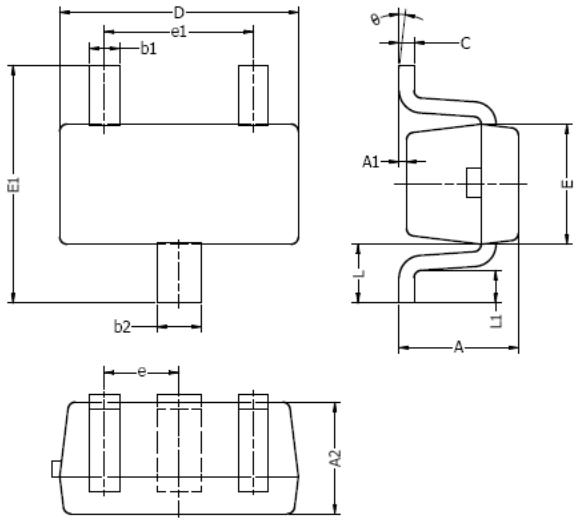








OUTLINE AND DIMENSIONS



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0^0	8^0	0^0	8^0

NOTES:
1. Above package outline conforms to JEITA EAIJ ED-7500A SC-75.
2. Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

Typical Soldering Pattern: