

■ **N-Channel MOSFET**

■ **Features**

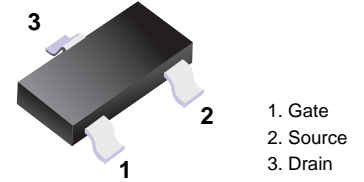
- Lead Free Product is Acquired
- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

■ **Application**

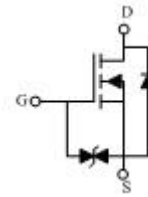
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

■ **Marking**

Marking	KF
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■ **Simplified outline(SOT-723)**



$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20 V	380mΩ@ 4.5V	0.75A
	450mΩ@ 2.5V	
	800mΩ@ 1.8V	

■ **Absolute Maximum Ratings $T_a = 25^{\circ}C$**

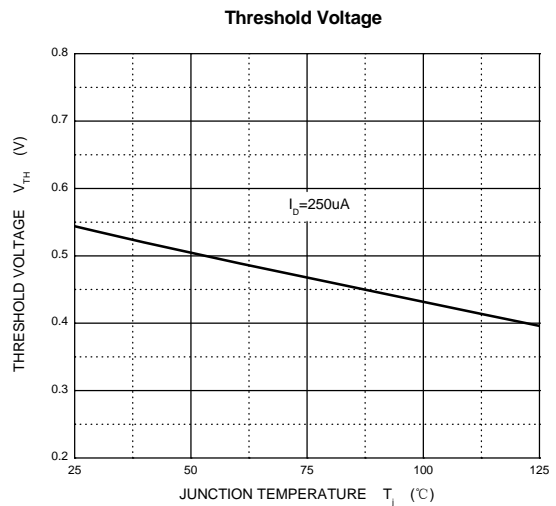
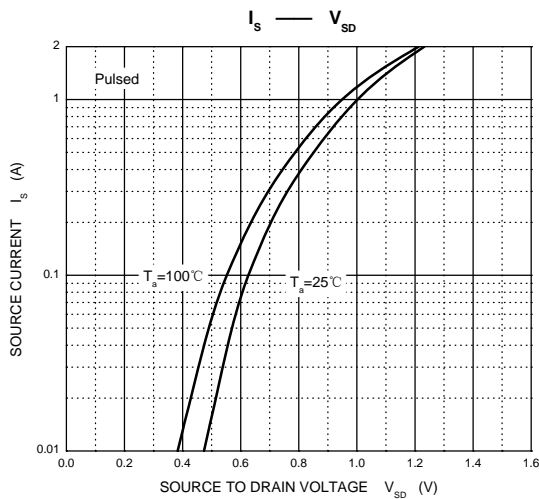
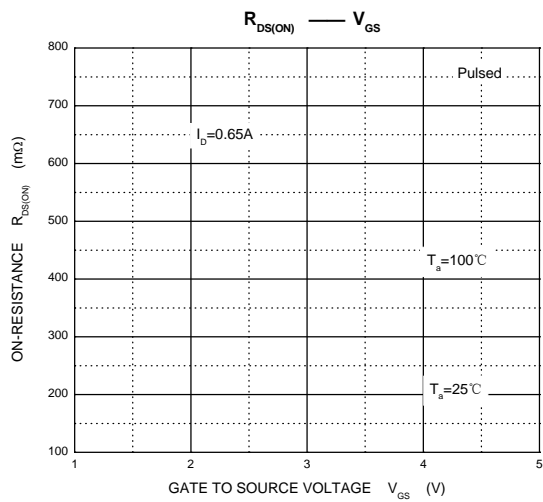
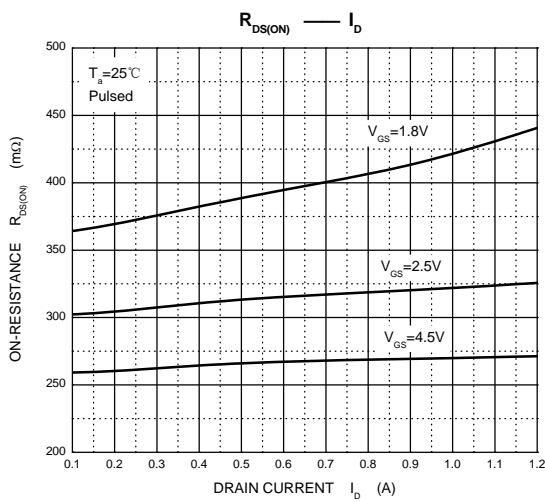
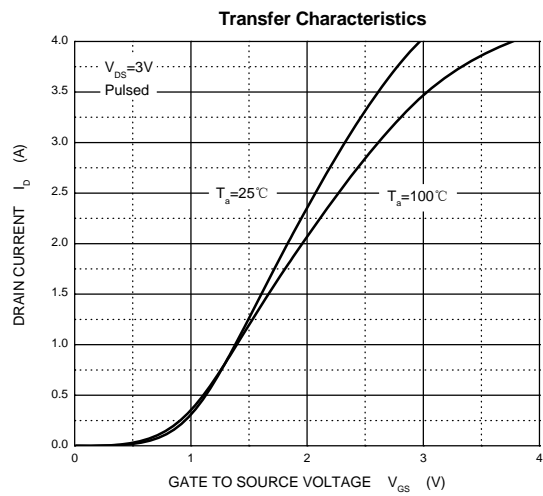
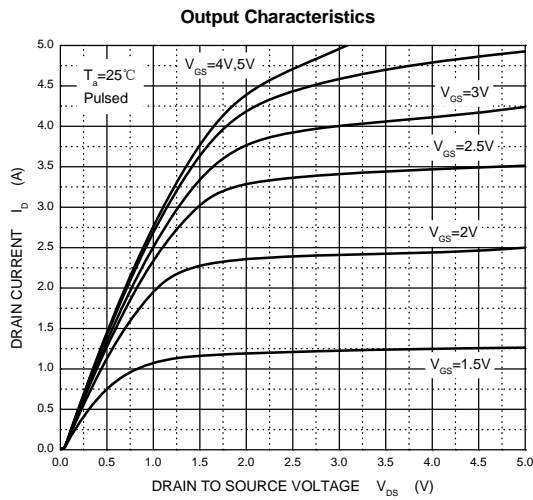
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Typical Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current (note 1)	I_D	0.75	A
Pulsed Drain Current ($t_p=10\mu s$)	I_{DM}	1.8	A
Power Dissipation (note 1)	P_D	150	mW
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	833	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}C$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	T_L	260	$^{\circ}C$

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 20	μA
Gate threshold voltage (note 2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.35	0.54	1.1	V
Drain-source on-resistance (note 2)	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.65A$		270	380	m Ω
		$V_{GS} = 2.5V, I_D = 0.55A$		320	450	m Ω
		$V_{GS} = 1.8V, I_D = 0.45A$		390	800	m Ω
Forward transconductance (note 2)	g_{FS}	$V_{DS} = 10V, I_D = 0.8A$		1.6		S
Diode forward voltage	V_{SD}	$I_S = 0.15A, V_{GS} = 0V$			1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C_{iss}	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$		79	120	pF
Output capacitance	C_{oss}			13	20	pF
Reverse transfer capacitance	C_{rss}			9	15	pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time (note 3)	$t_{d(on)}$	$V_{GS} = 4.5V, V_{DS} = 10V,$ $I_D = 500mA, R_{GEN} = 10\Omega$		6.7		ns
Turn-on rise time (note 3)	t_r			4.8		ns
Turn-off delay time (note 3)	$t_{d(off)}$			17.3		ns
Turn-off fall time (note 3)	t_f			7.4		ns

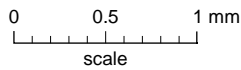
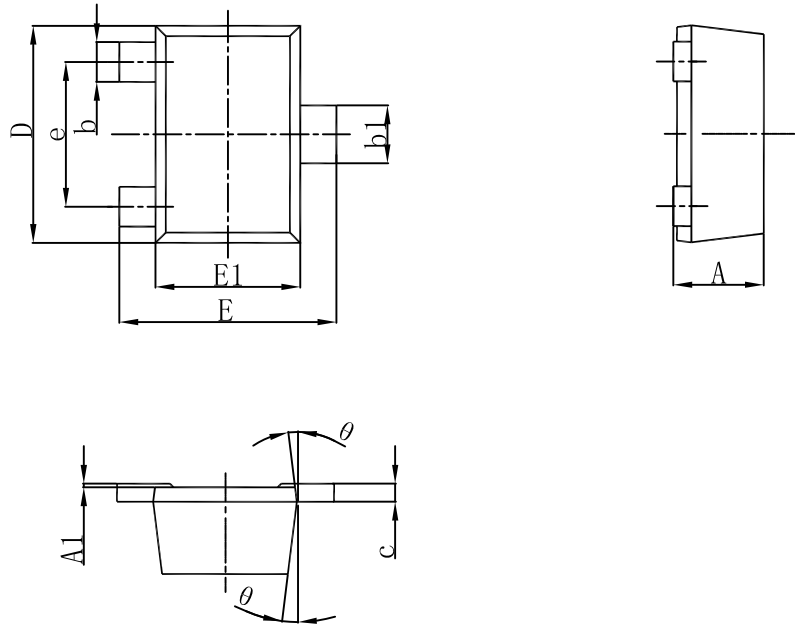
Notes :

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300 μs , Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.



Package Outline

SOT-723



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b	b ₁	c	D	E	E ₁
mm	0.43 0.50	0.05	0.17 0.27	0.27 0.37	0.08 0.15	1.15 1.25	0.15 0.25	0.75 0.85

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOT-723	Tape/Reel, 7" reel	8000	EIA-481-1