

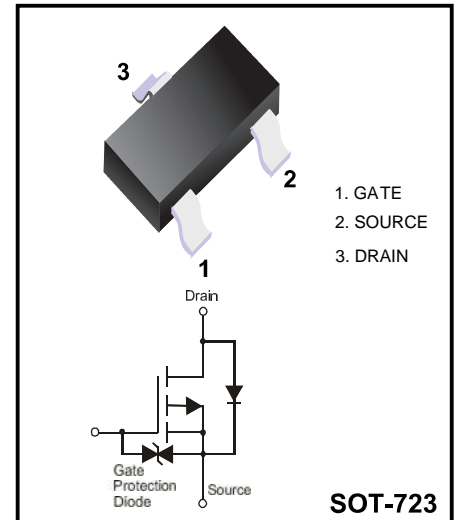
**P-Channel MOSFET**

**Features**

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

**Application**

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



**Marking Code**

YFW3139K

KD

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-20V	520mΩ@-4.5V	-0.66A
	700mΩ@-2.5V	
	950mΩ(TYP)@-1.8V	

**Absolute Maximum Ratings (Ta=25°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)	$I_D$	-0.66	A
Pulsed Drain Current ( $t_p=10\mu s$ )	$I_{DM}$	-1.2	A
Power Dissipation (note 1)	$P_D$	150	mW
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	833	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55~+150	°C
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	$T_L$	260	°C

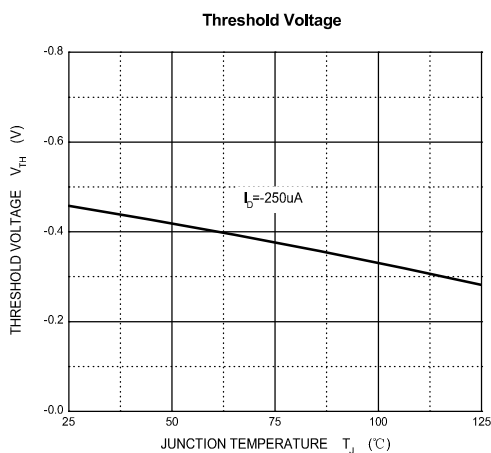
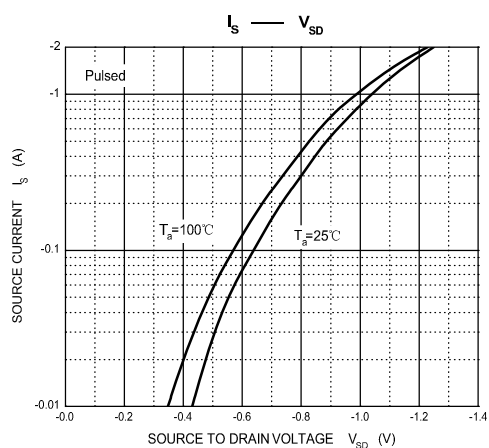
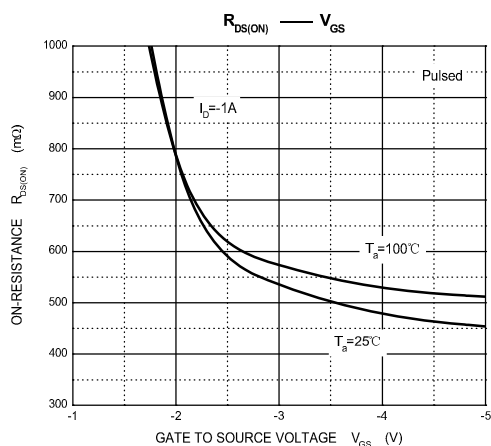
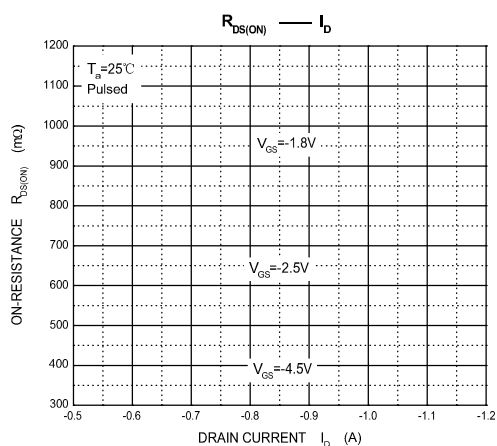
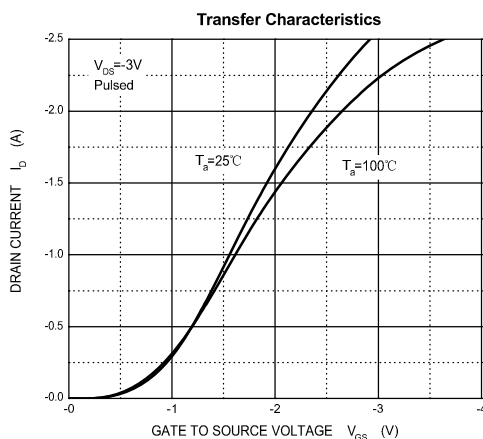
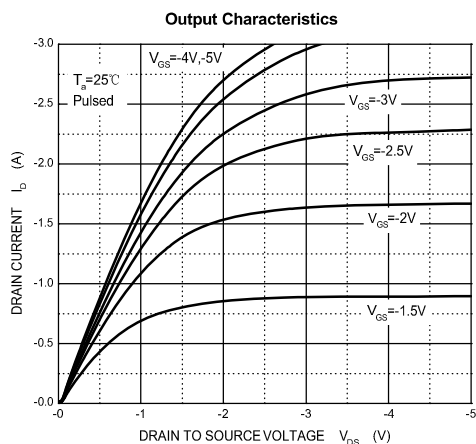
### Electrical Characteristics (Ta=25℃ unless otherwise specified.)

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	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 10V, V_{DS} = 0V$			$\pm 20$	$\mu A$
Gate threshold voltage (note 2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.35	-0.45	-1.1	V
Drain-source on-resistance (note 2)	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -1A$		430	520	m $\Omega$
		$V_{GS} = -2.5V, I_D = -0.8A$		624	700	m $\Omega$
		$V_{GS} = -1.8V, I_D = -0.5A$		950		m $\Omega$
Forward transconductance (note 2)	$g_{FS}$	$V_{DS} = -10V, I_D = -0.54A$		1.2		S
Diode forward voltage	$V_{SD}$	$I_S = -0.5A, V_{GS} = 0V$			-1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	$C_{iss}$	$V_{DS} = -16V, V_{GS} = 0V, f = 1MHz$		113	170	pF
Output capacitance	$C_{oss}$			15	25	pF
Reverse transfer capacitance	$C_{rss}$			9	15	pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time (note 3)	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DS} = -10V,$ $I_D = -200mA, R_{GEN} = 10\Omega$		9		ns
Turn-on rise time (note 3)	$t_r$			5.8		ns
Turn-off delay time (note3)	$t_{d(off)}$			32.7		ns
Turn-off fall time (note 3)	$t_f$			20.3		ns

#### Notes :

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

## Typical Characteristics



**Ordering information**

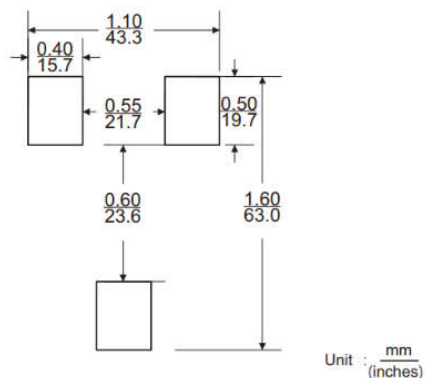
Package	Packing Description	Base Quantity	Packing Quantity
SOT-723	Tape/Reel, 7" reel	8000pcs/Reel	64000PCS/Box 320000PCS/Carton

**Package Dimensions**

**SOT-723**

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	1.10	1.30	43.3	51.2
B	-	0.80	-	31.5
C	1.10	1.30	43.3	51.2
D	0.70	0.90	27.6	35.4
E	0.20	0.30	7.9	11.8
F	0.40	0.50	15.7	19.7
G	0.15	0.25	5.9	9.8
H	0.06	0.16	2.4	6.3
L	0.15	0.25	5.9	9.8

**The recommended mounting pad size**



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