

P-Channel MOSFET
-60V -180mA 225mW SOT-23

MFT6PA18S23

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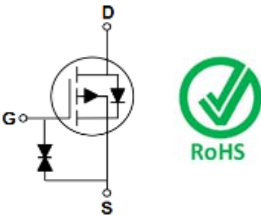
FEATURE

- $R_{DS(ON)} \leq 10\Omega$, $V_{GS} = -5V$, $I_D = 100mA$
- Application: Power Management in Note book, Battery Powered System,
- Halogen-free



MECHANICAL DATA

- Case: SOT-23 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

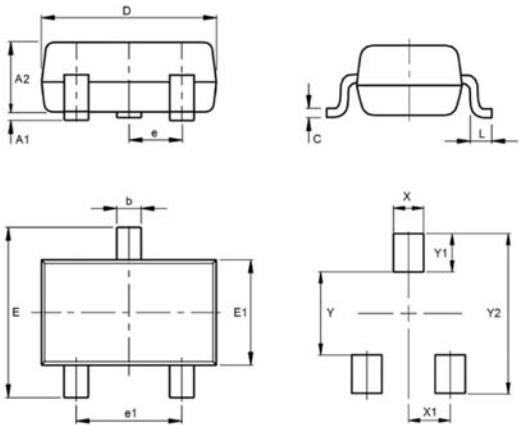


MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current – Continuous		I_D	-180	mA
Drain Current – Pulsed		I_{DM}	-700	mA
Power Dissipation		P_D	225	mW
Operating Junction Temperature		T_J	-55 to 150	°C
Storage Temperature Range		T_{stg}	-55 to 150	
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	556	°C / W
	(Note 4)		265	

DIMENSIONS

SOT-23	Min (mm)	Max (mm)
A1	0.00	0.10
A2	0.79	1.30
b	0.30	0.50
C	0.08	0.20
D	2.70	3.10
e	0.95 TYP	
e1	1.78	2.04
E	2.10	2.80
E1	1.20	1.60
L	0.15	--



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ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	BV_{DSS}	-50	--	--	V
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D = -250\mu A$	$V_{GS(th)}$	-0.9	--	-2.0	V
Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	I_{GSS}	--	--	± 10	μA
Zero Gate Voltage Drain Current	$V_{DS} = -25V, V_{GS}=0V$	I_{DSS}	--	--	-0.1	
	$V_{DS} = -60V, V_{GS}=0V$		--	--	-1.0	μA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS} = -5V, I_D = -100mA$	$R_{DS(on)}$	--	2.6	10.0	Ω
Dynamic Characteristics	Conditions	Symbol	--	Typ.	Max	Unit
Input Capacitance	$V_{DS}=-30V, V_{GS}=0V$ $F=1.0MHz$	C_{iss}	--	38	--	pF
Output Capacitance		C_{oss}	--	9	--	
Reverse Transfer Capacitance		C_{rss}	--	6	--	
Turn-On Delay Time	$V_{DS} = -25V, I_D \equiv -0.1A,$ $V_{GS} = -10V, R_G = 6.8\Omega$	$T_{d(on)}$	--	14	--	nS
Rise Time		T_r	--	4	--	
Turn-Off Delay Time		$T_{d(off)}$	--	15	--	
Fall Time		T_f	--	77	--	
Total Gate Charge	$V_{DS}=-25V, V_{GS}=-4.5V, I_D \equiv -0.1A$	Q_g	--	1.1	--	nC
Gate-Source Charge		Q_{gs}	--	0.3	--	
Gate-Drain Charge		Q_{gd}	--	0.2	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Voltage	$I_S = -0.5A, V_{GS}=0V$	V_{SD}	--	--	-1.2	V
Forward Transconductance	$V_{DS} = -25V, I_D = -100mA$	g_{fs}	0.05	--	--	S

Note:

1. $T_A = 25^\circ C$ Exposure to absolute maximum rating conditions for extended periods may remain possibility to affect device reliability
2. Pulse width<100us, Duty cycle<2%, Repetitive rating, pulse width limited by junction temperature $T_J(MAX)=150^\circ C$
3. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a PCB described in Note 4&5.
4. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout..
5. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-in2 copper plate.

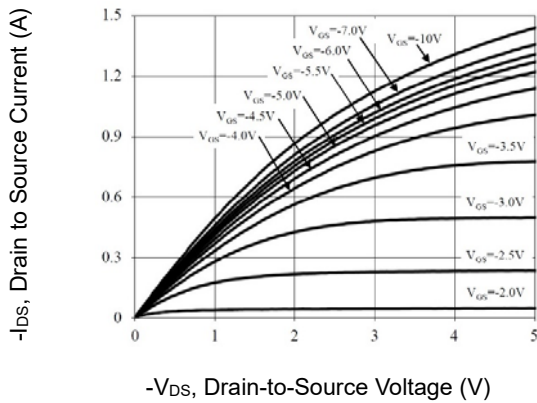
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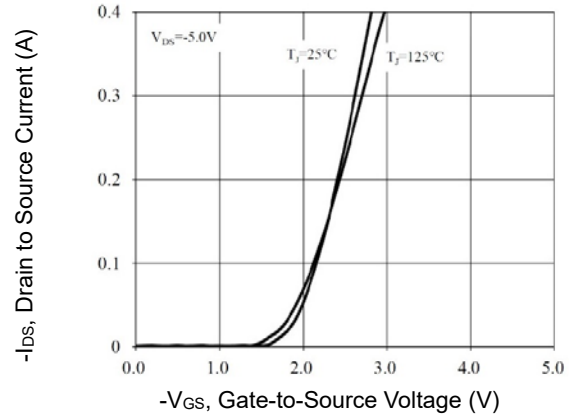
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CHARACTERISTIC CURVES

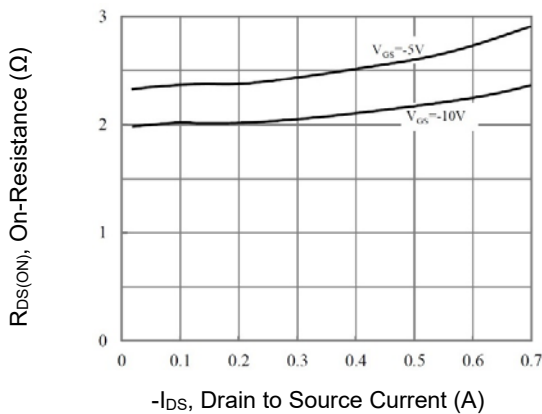
On Region Characteristics



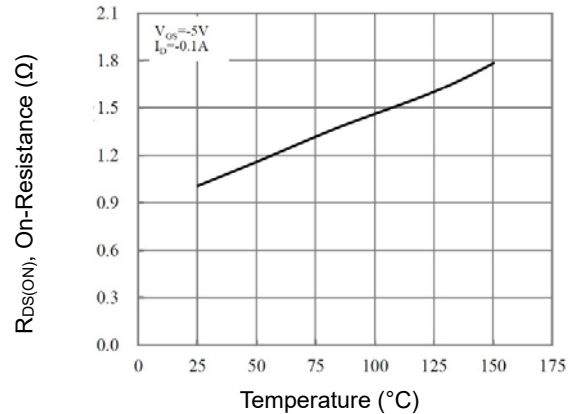
Transfer Characteristics



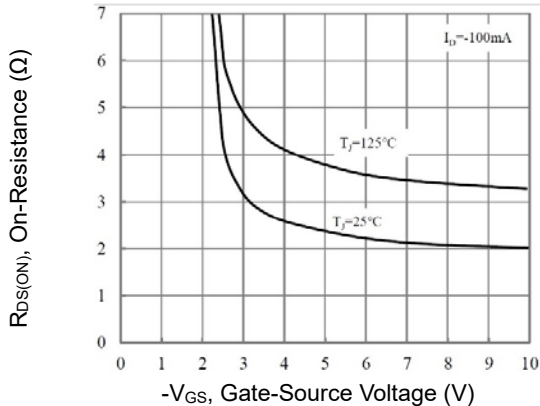
On-Resistance vs. Drain Current



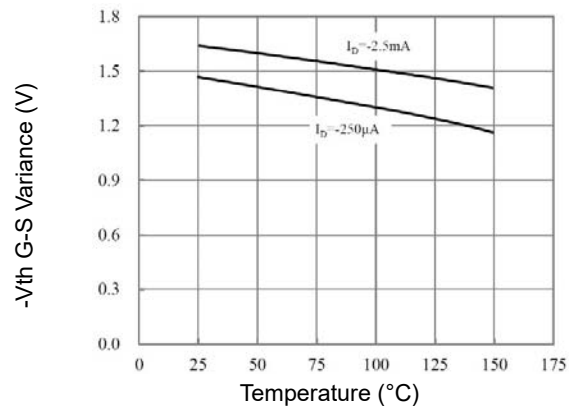
On-Resistance vs. Junction Temperature



On-Resistance Variation with V_{GS}



Threshold Voltage Variance vs. Temperature



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