

P-Channel MOSFET

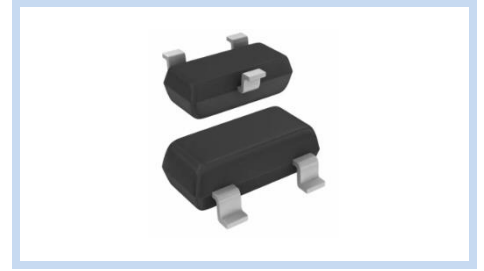
30V 3.6A SOT-23 AEC-Q101

MFT3P3A6S23A

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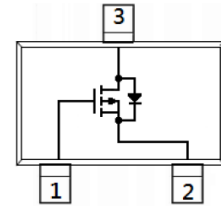
FEATURE

- $R_{DS(ON)} < 72m\Omega$, $V_{GS} = -10V$, $I_D = -3.6A$
- $R_{DS(ON)} < 82m\Omega$, $V_{GS} = -4.5V$, $I_D = -2.3A$
- $R_{DS(ON)} < 115m\Omega$, $V_{GS} = -2.5V$, $I_D = -1.4A$
- Advanced Trench Process Technology
- Application: Switch Load, PWM Application, etc
- AEC-Q101 Qualified



MECHANICAL DATA

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

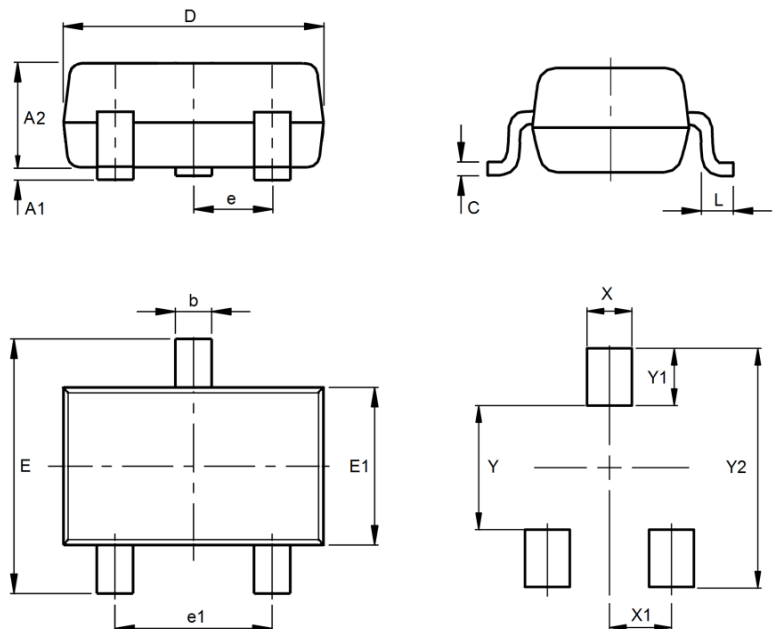


MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 12	V
Drain Current – Continuous		I_D	-3.6	A
Drain Current – Pulsed		I_{DM}	-14.4	A
Power Dissipation	$T_A = 25^\circ C$	P_D	1.25	W
	Derate above 25°C		10	mW / °C
Operating Junction Temperature and Storage Temperature		T_J, T_{stg}	-55 to 150	°C
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	100	°C / W

DIMENSIONS

Item	Min (mm)	Max (mm)
A1	0.00	0.10
A2	0.90	1.10
b	0.35	0.50
C	0.08	0.20
D	2.80	3.04
e	0.90	1.00
e1	1.80	2.00
E	2.20	2.60
E1	1.20	1.40
L	0.15	
X	0.80	
X1	0.95	
Y	1.10	
Y1	0.90	
Y2	2.90	



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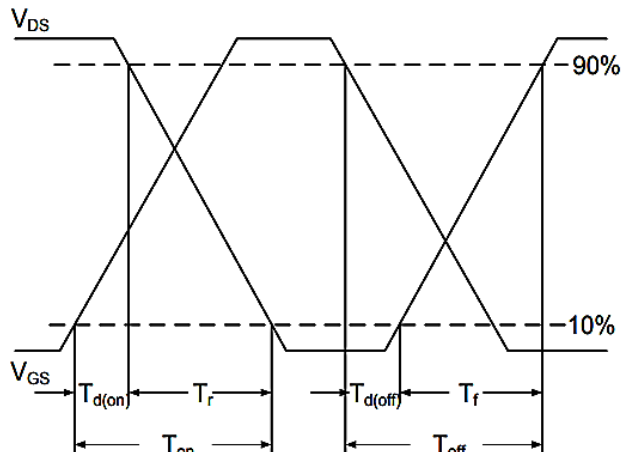
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ELECTRICAL CHARACTERISTICS

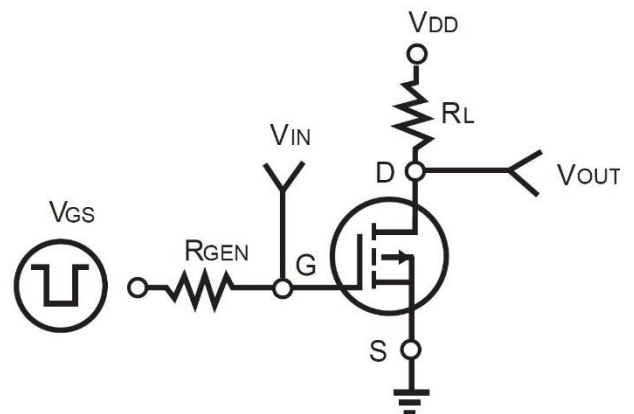
Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	BV_{DSS}	-30	--	--	V
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	$V_{GS(th)}$	-0.5	-0.97	-1.3	V
Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 12V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=-30V, V_{GS}=0V$	I_{DSS}	--	--	-1	μA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-3.6A$	$R_{DS(on)}$	--	60	72	m Ω
	$V_{GS}=-4.5V, I_D=-2.3A$		--	67	82	m Ω
	$V_{GS}=-2.5V, I_D=-1.4A$		--	84	115	m Ω
Dynamic Characteristics	Conditions	Symbol	--	Typ.	Max	Unit
Input Capacitance	$V_{DS}=-15V, V_{GS}=0V$ $F=1.0MHz$	C_{iss}	--	633	--	pF
Output Capacitance		C_{oss}	--	50	--	pF
Reverse Transfer Capacitance		C_{rss}	--	35	--	pF
Turn-On Delay Time		$T_{d(on)}$	--	2.9	--	nS
Rise Time	$V_{DS}=-15V, I_D=-3.6A,$ $V_{GS}=-10V, R_G=6\Omega$	T_r	--	43	--	nS
Turn-Off Delay Time		$T_{d(off)}$	--	224	--	nS
Fall Time		T_f	--	100	--	nS
Total Gate Charge	$V_{DS}=-15V, V_{GS}=-10V, I_D=-3.6A$	Q_g	--	15	--	nC
Gate-Source Charge		Q_{gs}	--	1.3	--	nC
Gate-Drain Charge		Q_{gd}	--	2	--	nC
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Voltage	$I_S=-1A, V_{GS}=0V$	V_{SD}	--	-0.77	-1.2	V
Diode Forward Current	---	I_S	--	--	-1.5	A

- Note:
- $T_A = 25^\circ C$ Exposure to absolute maximum rating conditions for extended periods may remain possibility to affect device reliability
 - Pulse width < 300 μs , Duty cycle < 2%.
 - $R_{\theta JA}$ 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 1 inch FR-4 with 2oz square pad of copper.
 - Guaranteed by design, not subject to production testing.
 - The maximum current rating is package limited.

Switching Time Waveform



Switching Test Circuit



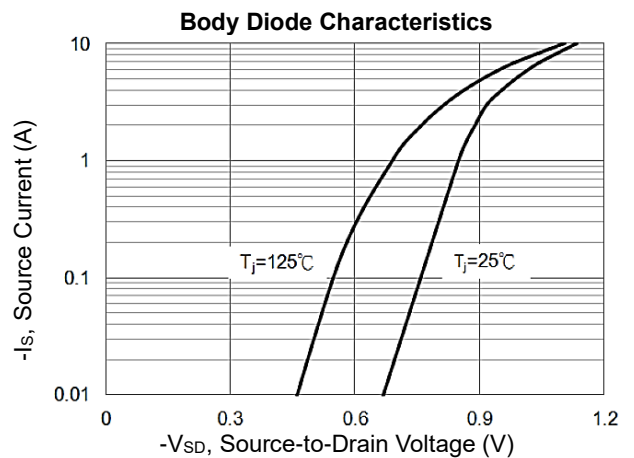
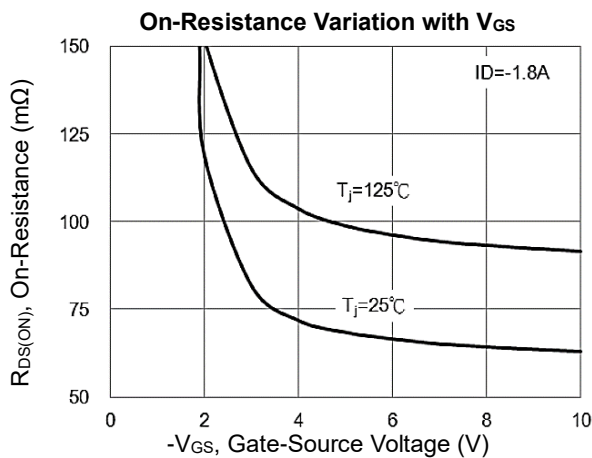
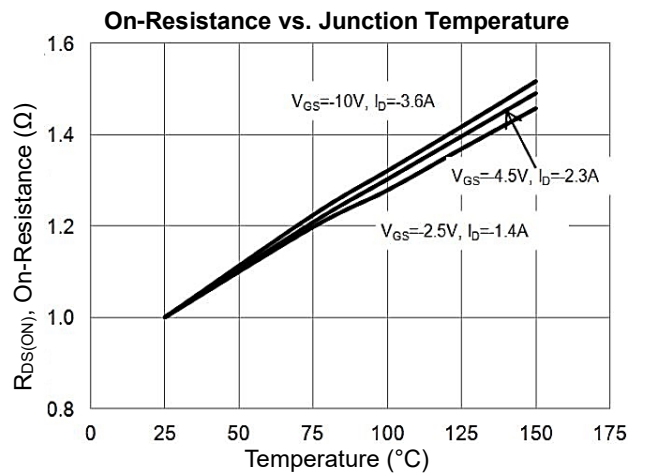
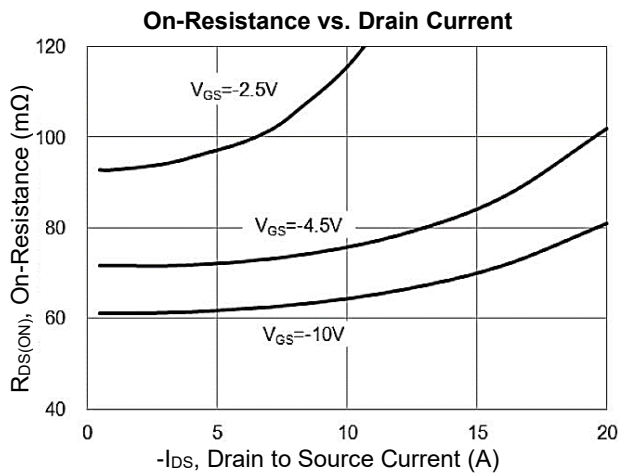
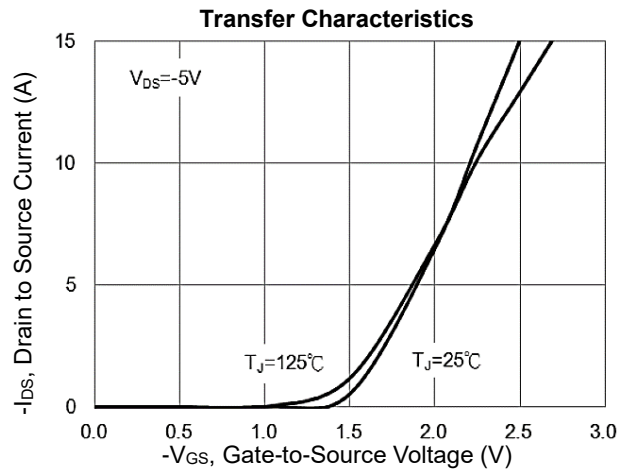
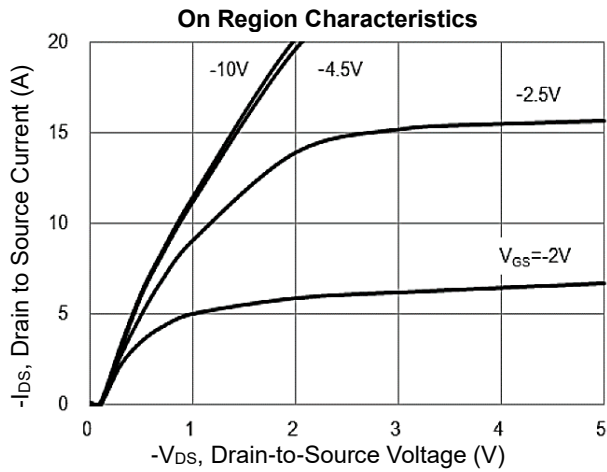
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