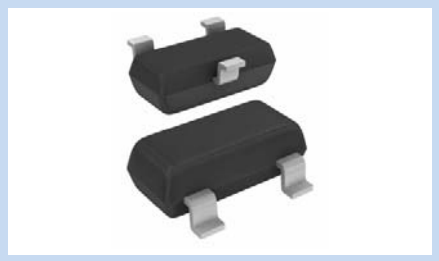
N-Channel MOSFET
60V 360mA SOT-23

MFT6NA36S23E

MERITEK

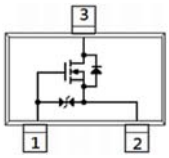
FEATURE

- Operating temperature: -55 ~ 150 °C
- Advanced Trench Process Technology
- ESD Protected Design >2KV
- Designed for Switch Load, PWM Application



MECHANICAL DATA

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



RoHS

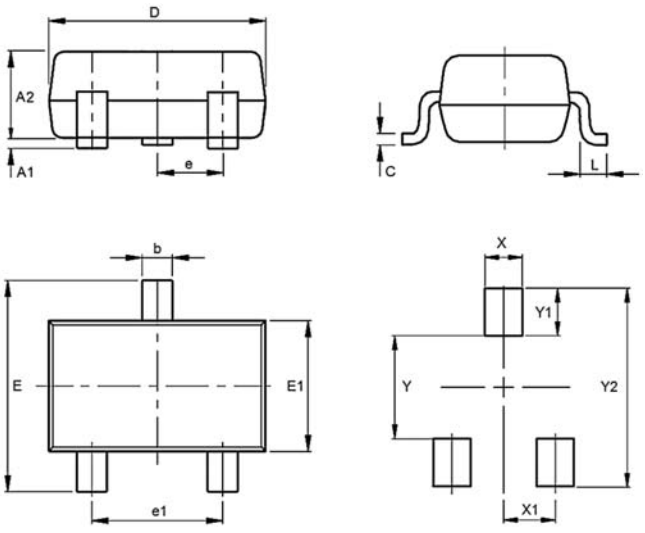
MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current – Continuous	V_{GS}=10V, T_A=25°C	I_D	360	mA
	V_{GS}=10V, T_A=100°C		230	
Drain Current – Pulsed	T_p < 10μs	I_{DM}	1.2	A
Power Dissipation	(Note 2)	P_D	350	mW
	(Note 1)		420	
Thermal Resistance, Junction-to-Ambient	(Note 2)	$R_{\theta JA}$	370	°C/W
	(Note 1)		300	
Operating Junction and Storage Temperature		T_J,T_{stg}	-55 to 150	°C

Note:
1. Device mounted on an FR4 PCB, single-sided copper, tin-plated mounting pad for drain 1 cm^2
2. Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint
3. T_A=25˚C unless otherwise noted

DIMENSIONS

SOT-23	Min (mm)	Max (mm)
A1	--	0.10
A2	0.79	1.30
b	0.30	0.50
C	0.08	0.20
D	2.70	3.10
e	0.89	1.02
e1	1.78	2.04
E	2.10	2.80
E1	1.20	1.60
L	0.15	--



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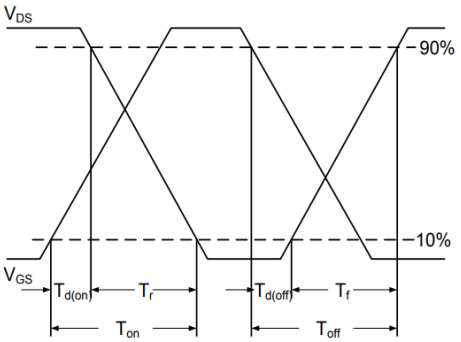
ELECTRICAL CHARACTERISTICS

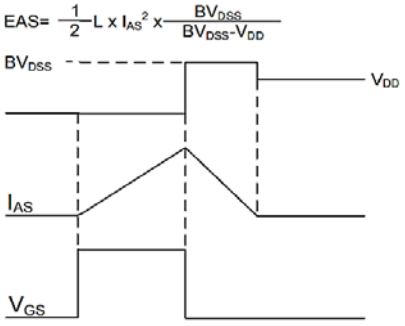
Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D= 250uA	BV_{DSS}	60	--	--	V
Forward Transconductance	V_{DS}=10V, ID= 200mA	g_{FS}	--	700	--	mS
Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V	I_{GSS}	--	--	±10	μA
	V_{DS}=0V, V_{GS}=±10V		--	--	±1	
Zero Gate Voltage Drain Current	V_{DS}= 60V, V_{GS}=0V	I_{DSS}	--	--	1	μA
On Characteristics	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Gate Threshold Voltage	V_{GS}=V_{DS}, I_D= 250uA	$V_{GS(th)}$	0.48	--	1.6	V
Drain-Source On-Resistance	V_{GS}=10V, I_D= 350mA	$R_{DS(ON)}$	--	--	1.6	Ω
	V_{GS}= 4.5V, I_D= 200mA		--	--	2.2	
	V_{GS}= 2.5V, I_D= 100mA		--	--	6.5	
Dynamic Characteristics	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Input Capacitance	V_{DS}= 10V, V_{GS}=0V F=1.0MHz	C_{iss}	--	--	56	pF
Output Capacitance		C_{oss}	--	7	--	
Reverse Transfer Capacitance		C_{rss}	--	4	--	
Turn-On Delay Time	V_{DS}= 40V, R_L= 250Ω V_{GS}= 10V, R_{GEN}=3.3Ω	$T_{d(on)}$	--	--	10	nS
Rise Time		T_r	--	5	--	
Turn-Off Delay Time		$T_{d(off)}$	--	--	76	
Fall Time		T_f	--	20	--	
Static Characteristics	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Diode Forward Voltage	I_S=300mA, V_{GS}=0V	V_{SD}	0.47	--	1.2	V

Note:
1. Pulse width≤ 300μs, duty cycle≤2%
2. Essentially independent of operating temperature typical characteristics
3. $R\theta_{JA}$ is the sum of the junction to case to ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1inch FR-4 with 2oz. square pad of copper.
4. The maximum current rating is package limited.
5. Guaranteed by design, not subject to production testing.

Switching Time Waveform

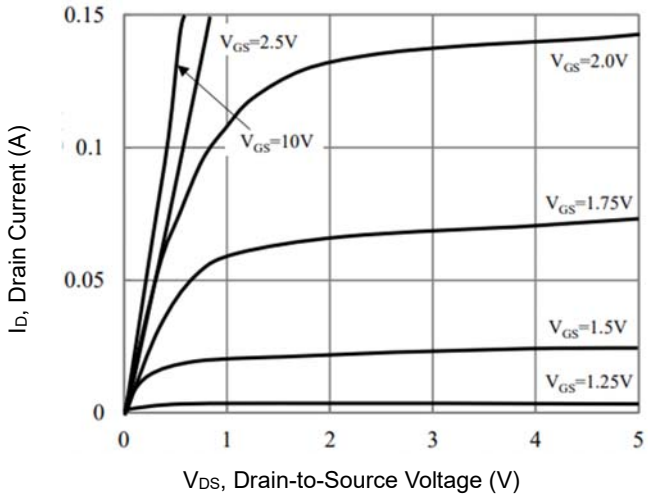


EAS Waveform

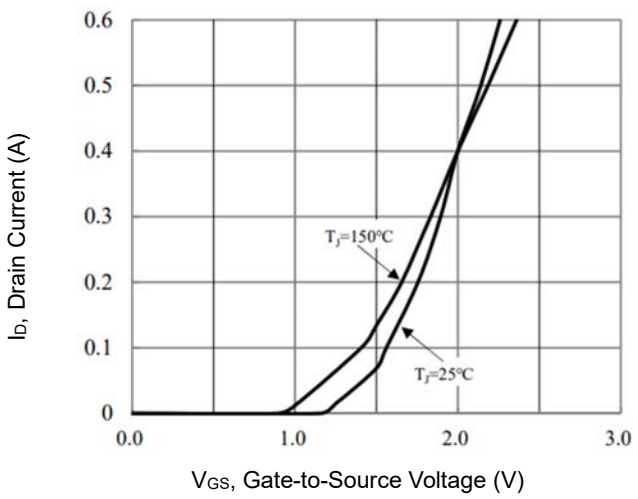


CHARACTERISTIC CURVES

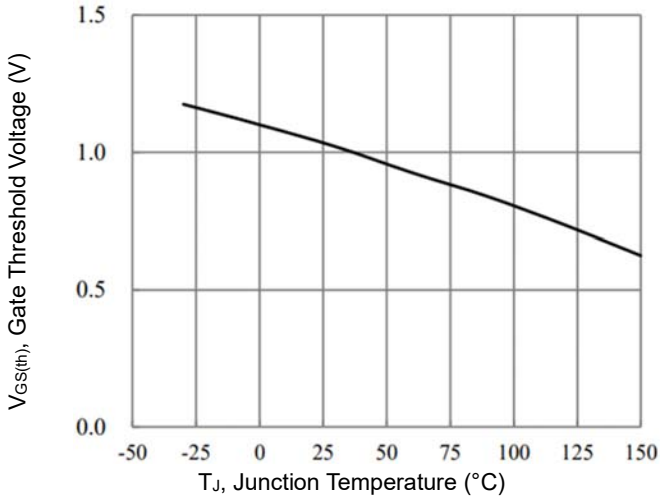
Typical Characteristics



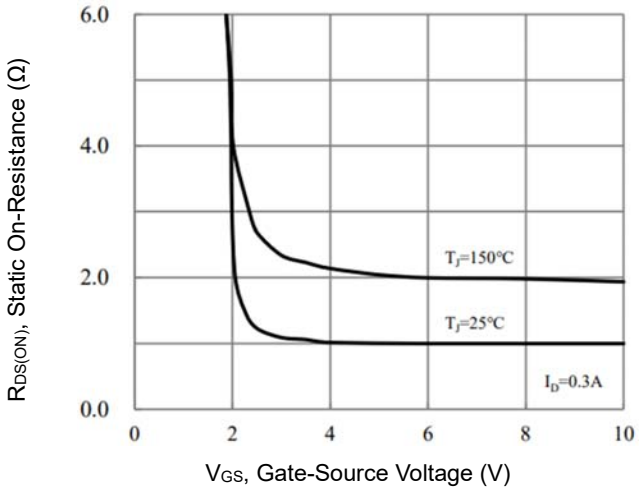
Transfer Characteristics



Gate Threshold Voltage vs. Junction Temperature



On-State Resistance vs. Gate-Source Voltage



On-State Resistance vs. Drain Current