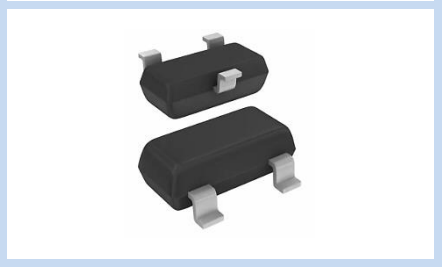
N-Channel MOSFET
60V 0.15W SOT-523 ESD

MFT6NA115S523E

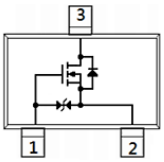
MERITEK

FEATURE



- $R_{DS(ON)}$=3Ω, V_{GS}=10V
- $R_{DS(ON)}$=4Ω, V_{GS}=4.5V
- ESD Protection Gate HBM 2KV
- Voltage Controlled Small Signal Switch
- High Saturation Current Capability
- Application: DC/DC Converter, Battery Switch

MECHANICAL DATA



RoHS

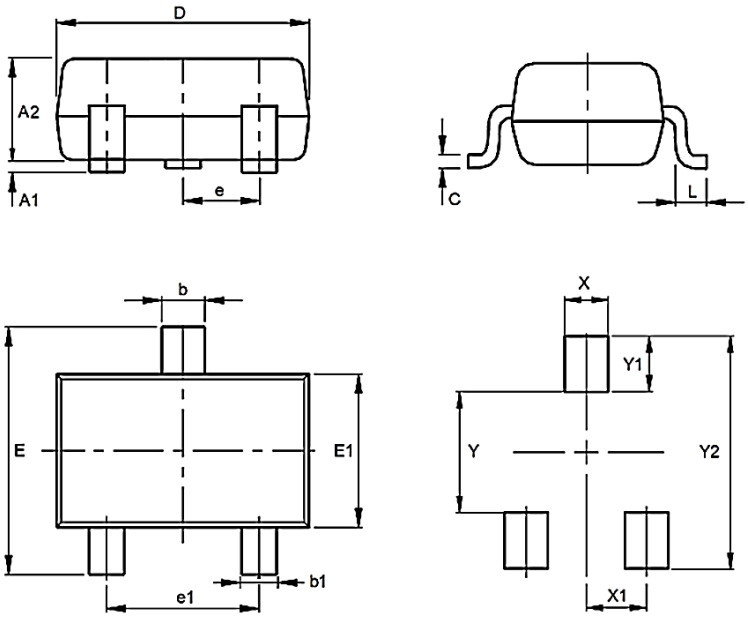
- Case: SOT-523 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	115	mA
Power Dissipation	P_D	0.15	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	°C / W
Junction Operating Temperature	T_J	150	°C
Storage Temperature Range	T_{stg}	-55 to 150	°C

DIMENSIONS

Item	Min (mm)	Max (mm)
A1	0.00	0.10
A2	0.70	0.80
b	0.25	0.35
b1	0.15	0.25
c	0.10	0.20
D	1.50	1.70
e	0.50 TYP	
e1	0.90	1.10
E	1.45	1.75
E1	0.70	0.90
L	0.26	0.46
X	0.5	
X1	0.5	
Y	0.64	
Y1	0.6	
Y2	2.04	

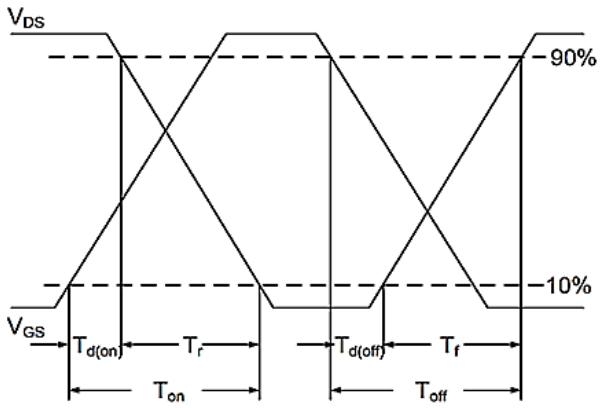


ELECTRICAL CHARACTERISTICS

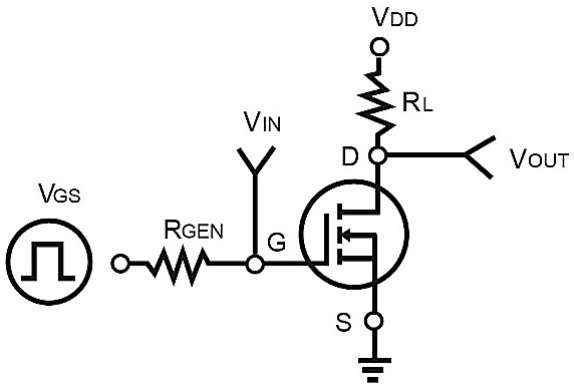
Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D= 250μA	BV_{DSS}	60	--	--	V
Gate Threshold Voltage	V_{GS}=V_{DS}, I_D= 250μA	$V_{GS(th)}$	1.0	--	2.5	V
Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V	I_{GSS}	--	--	±10	μA
Zero Gate Voltage Drain Current	V_{DS}= 60V, 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= 0.5A	$R_{DS(ON)}$	--	--	3	Ω
	V_{GS}= 4.5V, I_D= 0.2A		--	--	4	
Dynamic Characteristics	**Conditions**	**Symbol**	**--**	**Typ.**	**Max**	**Unit**
Input Capacitance	V_{DS}= 25V, V_{GS}=0V, F=1.0MHz	C_{iss}	--	30	50	pF
Output Capacitance		C_{oss}	--	4.2	25	
Reverse Transfer Capacitance		C_{rss}	--	2.9	5	
Total Gate Charge	V_{DS}=10V, V_{GS}=4.5V, I_D=0.25A	Q_g	--	0.3	--	nC
Gate-Source Charge		Q_{gs}	--	0.2	--	
Gate-Drain Charge		Q_{gd}	--	0.08	--	
Turn-On Delay Time	V_{DS} = 30V, I_D ≡0.2A, V_{GS} = 10V, R_G= 25Ω	$T_{d(on)}$	--	3.9	--	nS
Rise Time		T_r	--	3.4	--	
Turn-Off Delay Time		$T_{d(off)}$	--	15.7	--	
Fall Time		T_f	--	9.9	--	
Drain-Source Body Diode	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Diode Forward Voltage	I_S= 0.2A,V_{GS}=0V	V_{SD}	--	--	1.3	V

Note:
1. T_A = 25°C, unless otherwise noted
2. Pulse width<300μs, Duty cycle<2%.

Switching Time Waveform

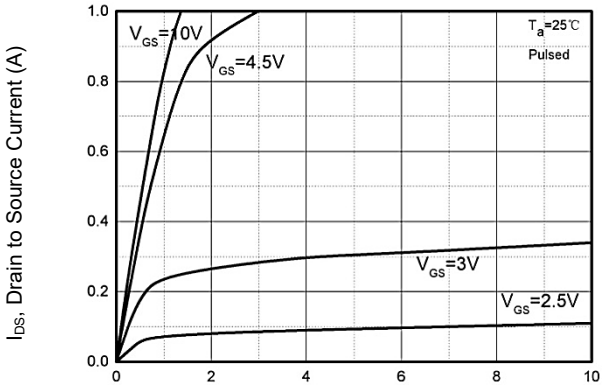


Switching Test Circuit

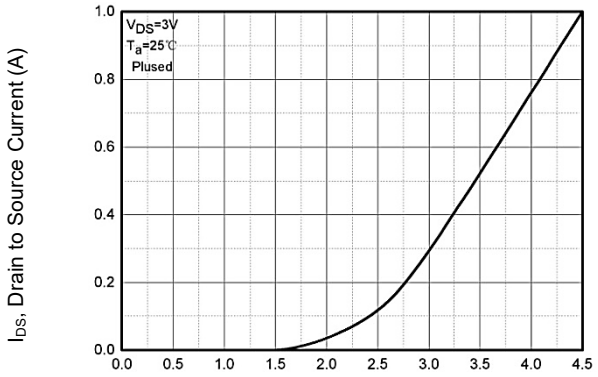


CHARACTERISTIC CURVES

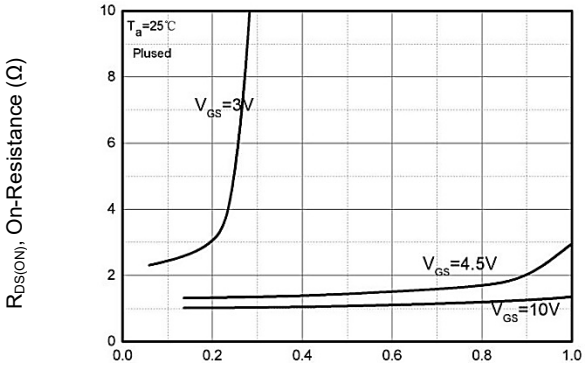
On Region Characteristics



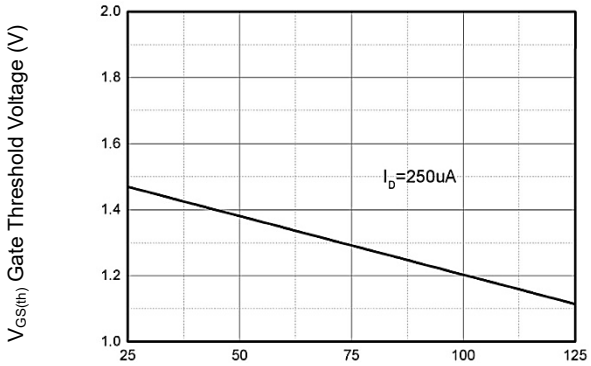
Transfer Characteristics



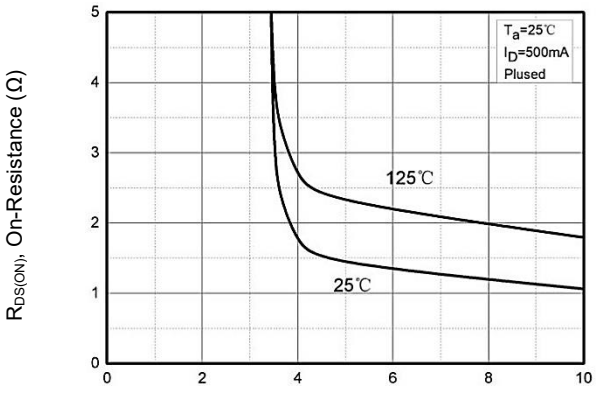
On-Resistance vs. Drain Current



Threshold Voltage Variance



On-Resistance Variation with V_{GS}



Body Diode Characteristics