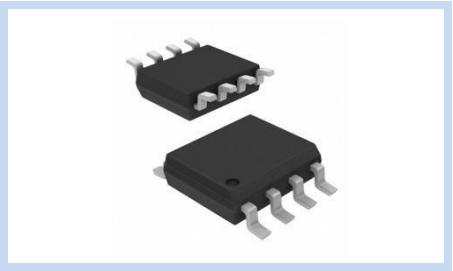
N-Channel MOSFET
100V 14A 3.1W SOP-8

MFT10N14S8

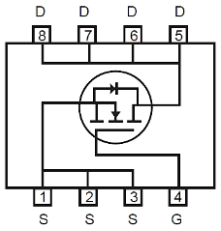
MERITEK

FEATURE



- $R_{DS(ON)}$ < 8.2mΩ, V_{GS} = 10V, I_D = 10A
- $R_{DS(ON)}$ < 11.5mΩ, V_{GS} = 4.5V, I_D = 5A
- High Power and Current Handling Capability
- High Dense Cell Design for Low $R_{DS(ON)}$

MECHANICAL DATA



RoHS

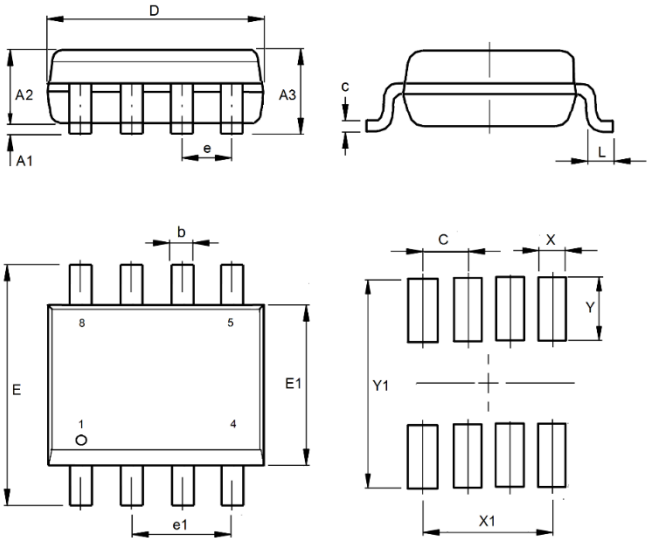
- Case: SOP-8 package
- Terminals: Solderable per MIL-STD-750, Method 2026

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current – Continuous	I_D	14	A
Drain Current – Pulsed	I_{DM}	56	A
Maxmum Power Dissipation	P_D	3.1	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	40	°C/W
Operating Junction And Storage Temperature	T_J. T_{STG}	-55 to 150	°C

DIMENSIONS AND PIN LAYOUT

Item	Min. (mm)	Max. (mm)
A	1.35	1.75
A1	0.10	0.25
A2	1.25	1.50
A3	1.35	1.75
b	0.31	0.51
c	0.17	0.25
D	4.69	5.00
E	5.80	6.20
E1	3.70	4.06
e	1.27 BSC	
h	0.25	0.50
L	0.40	0.95
X	0.50	
X1	3.81	
Y	1.00	
Y1	6.75	
C	1.27	

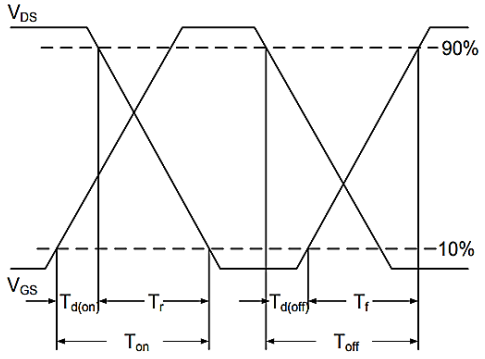


ELECTRICAL CHARACTERISTICS

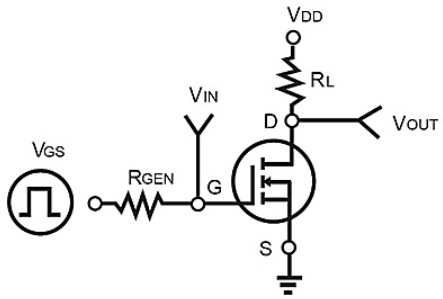
Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	BV_{DSS}	100	--	--	V
Drain-Source Leakage Current	V_{DS}=100V, V_{GS}=0V	I_{DSS}	--	--	1	μA
Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	--	--	±100	nA
On Characteristics	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Static Drain-Source On-Resistance	V_{GS}=10V, I_D=10A	$R_{DS(ON)}$	--	6.7	8.2	mΩ
	V_{GS}=4.5V, I_D=5A		--	9	11.5	mΩ
Gate Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	$V_{GS(th)}$	1	--	3	V
Dynamic Characteristics	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Total Gate Charge	V_{DS}=80V, V_{GS}=4.5V, I_D=10A	Q_g	--	23	--	nC
Gate-Source Charge		Q_{gs}	--	6	--	nC
Gate-Drain Charge		Q_{gd}	--	13	--	nC
Turn-On Delay Time	V_{DD}=80V, V_{GS}=10V, R_G=6Ω I_D=10A	$T_{d(on)}$	--	20	--	ns
Rise Time		T_r	--	10	--	ns
Turn-Off Delay Time		$T_{d(off)}$	--	58	--	ns
Fall Time		T_f	--	15	--	ns
Input Capacitance	V_{DS}=50V, V_{GS}=0V, F=1MHz	C_{iss}	--	1995	--	pF
Output Capacitance		C_{oss}	--	395	--	pF
Reverse Transfer Capacitance		C_{rss}	--	20	--	pF
Drain-Source Body Diode	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Continuous Source Current	--	I_S	--	--	3	A
Diode Forward Voltage	V_{GS}=0V, I_S=2A	V_{SD}	--	--	1	V

Note:
1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤2%.
2. Repetitive rating, pulse width limited by junction temperature.
3. Guaranteed by design, not subject to production testing.

Switching Time Waveform

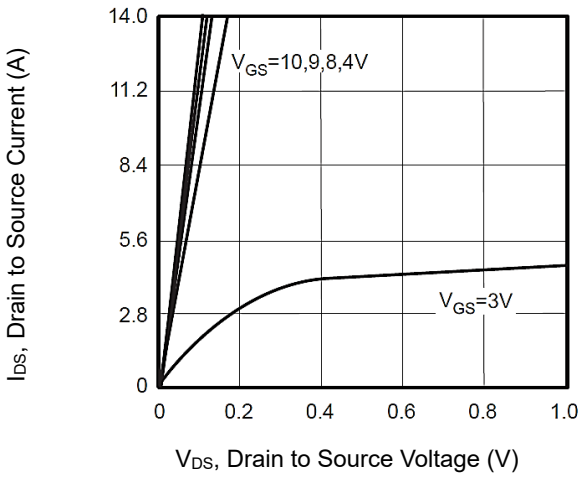


Switching Test Circuit

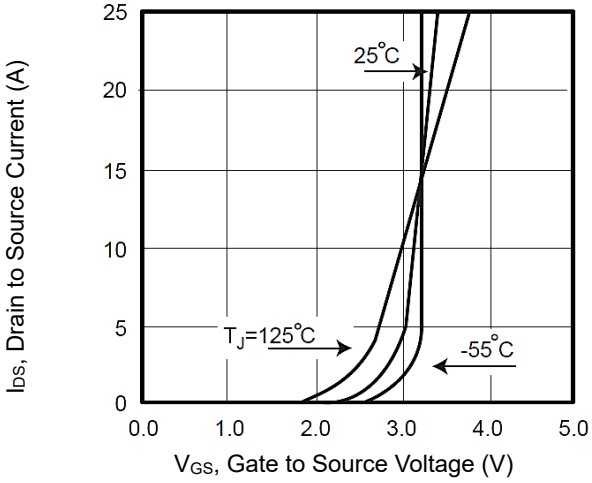


CHARACTERISTICS CURVES

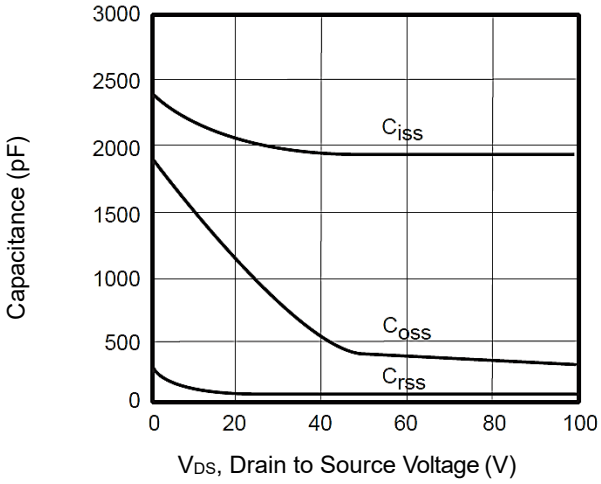
Output Characteristics



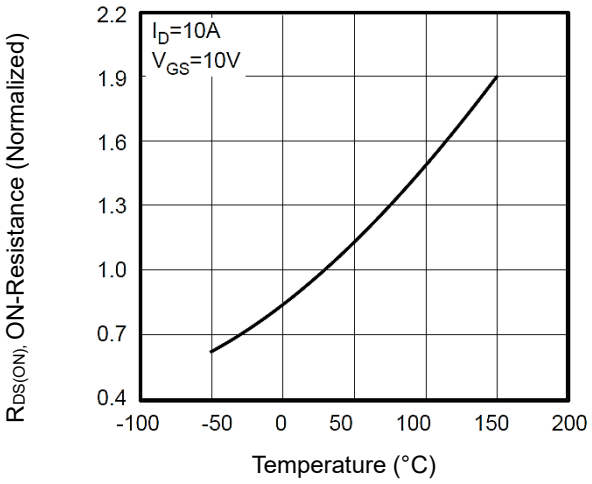
Transfer Characteristics



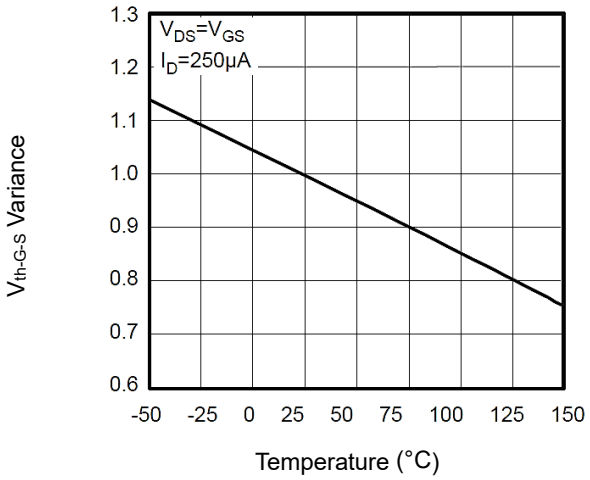
Capacitance vs. Drain-Source Voltage



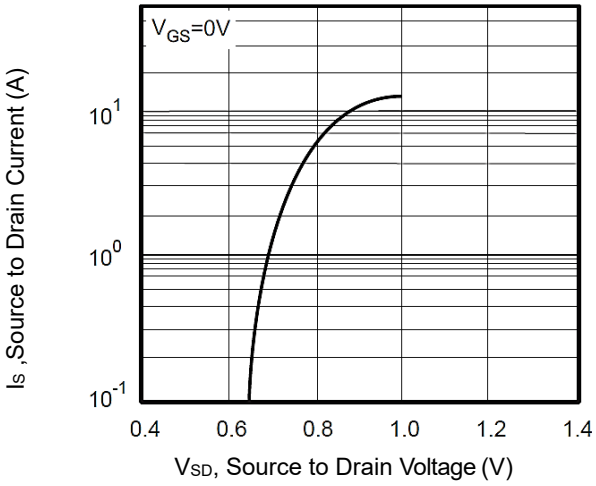
On-Resistance vs. Junction Temperature



Threshold Voltage Variation with Temperature

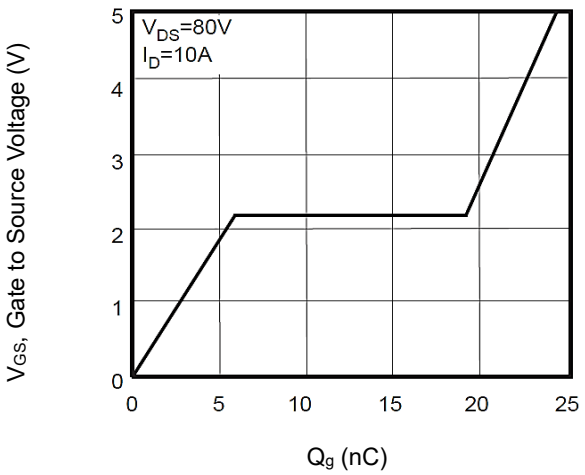


Body Diode Characteristics

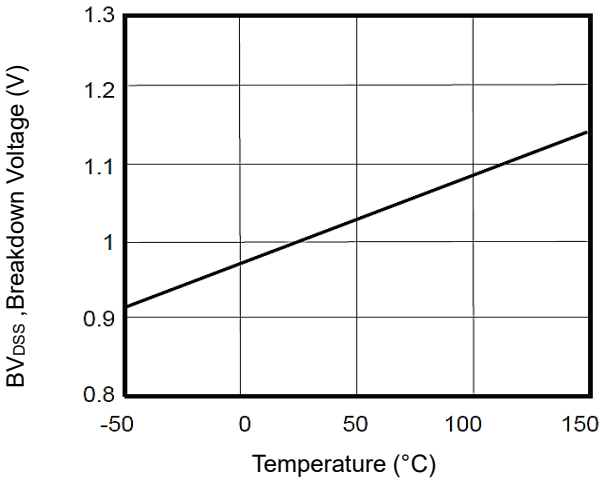


CHARACTERISTICS CURVES

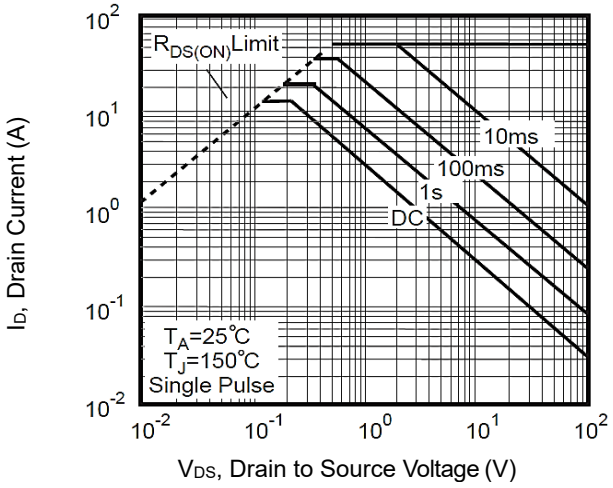
Gate-Charge Characteristics



Breakdown Voltage Variation vs. Temperature



Maximum Safe Operating Area



Normal Transient Thermal Impedance