

N-Channel MOSFET

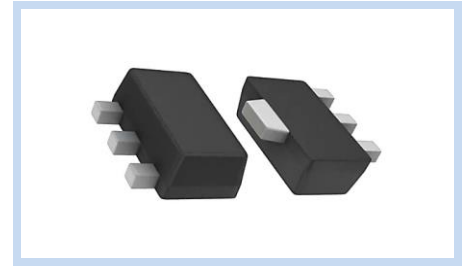
60V 3A 0.69W SOT-89

MFT6N3A0S89

MERITEK

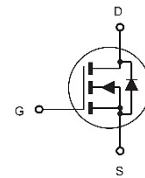
FEATURE

- $R_{DS(ON)} \leq 100m\Omega$, $V_{GS}=10V$
- Advanced Trench Process Technology
- High Density Cell Design for Low On-Resistance
- Applications: DC/DC Converters, Power Management Functions, Backlighting



MECHANICAL DATA

- Case: SOT-89 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

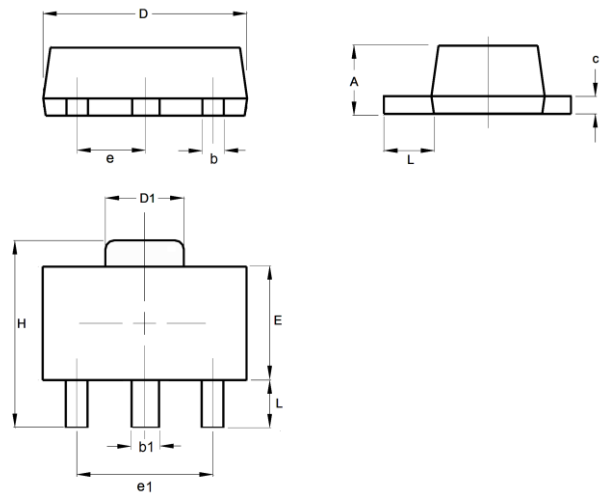


MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current – Continuous	$T_A=25^{\circ}C$	I_D	3	A
	$T_A=70^{\circ}C$		2.4	
Drain Current – Pulsed		I_{DM}	12	A
Power Dissipation		P_D	0.69	W
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	180	$^{\circ}C/W$
Operating Junction Temperature		T_J	150	$^{\circ}C$
Storage Temperature Range		T_{stg}	-55 to 150	$^{\circ}C$

DIMENSIONS

Item	Min (mm)	Max (mm)
A	1.40	1.60
b	0.33	0.52
b1	0.40	0.58
c	0.35	0.44
D	4.30	4.70
D1	1.55	
e	1.50	
e1	3.00	
E	2.25	2.65
E1	3.91	4.35
L	0.80	1.20



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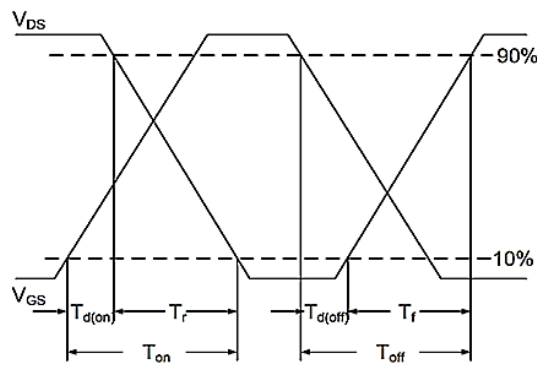
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ELECTRICAL CHARACTERISTICS

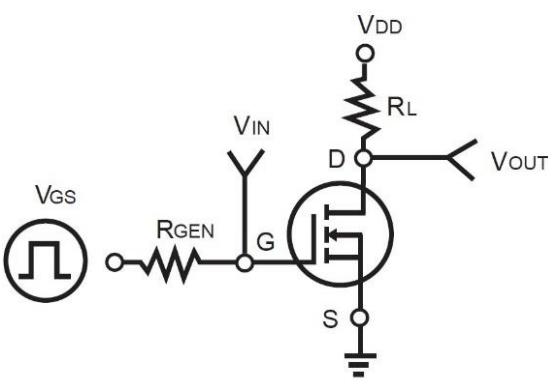
Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60	--	--	V
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	1.3	2.0	V
Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage 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	$V_{GS}=10V, I_D=3A$	$R_{DS(ON)}$	--	86	100	m Ω
	$V_{GS}=4.5V, I_D=2A$		--	92	120	
Dynamic Characteristics	Conditions	Symbol	--	Typ.	Max	Unit
Input Capacitance	$V_{DS}=10V, V_{GS}=0V, F=1MHz$	C_{iss}	--	409	--	pF
Output Capacitance		C_{oss}	--	50	--	
Reverse Transfer Capacitance		C_{rss}	--	41	--	
Turn-On Delay Time	$V_{DS}=30V, R_L=20\Omega, V_{GS}=10V, R_G=3\Omega$	$T_{d(on)}$	--	3.6	--	nS
Rise Time		T_r	--	17.6	--	
Turn-Off Delay Time		$T_{d(off)}$	--	13	--	
Fall Time		T_f	--	23	--	
Total Gate Charge	$V_{DS}=30V, V_{GS}=10V, I_D\equiv 3A$	Q_g	--	10.27	--	nC
Gate-Source Charge		Q_{gs}	--	1.65	--	
Gate-Drain Charge		Q_{gd}	--	2.11	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Current	--	V_{SD}	--	--	3	A
Diode Forward Voltage	$I_S=3A, V_{GS}=0V$	V_{SD}	--	--	1.2	V

Note:
 1. $T_A=25^{\circ}C$, unless otherwise noted
 2. Pulse width<300 μs , Duty cycle<2%
 3. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

Switching Time Waveform

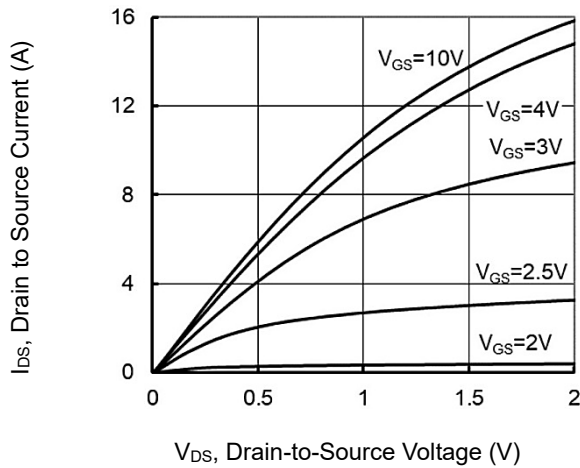


Switching Test Circuit

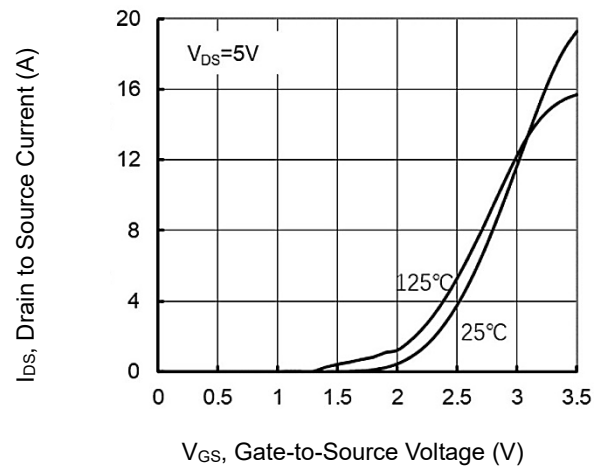


CHARACTERISTIC CURVES

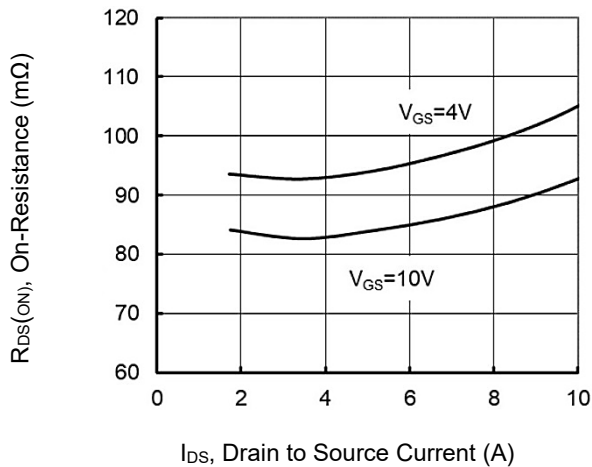
On Region Characteristics



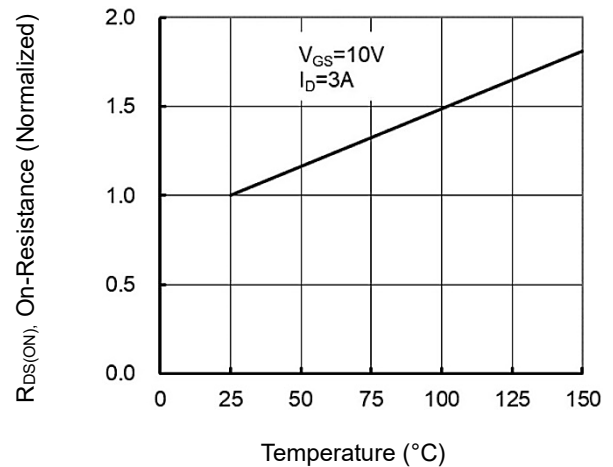
Transfer Characteristics



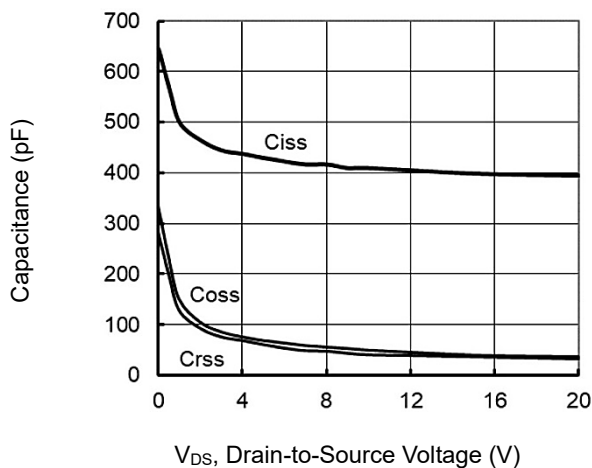
On-Resistance vs. Drain Current



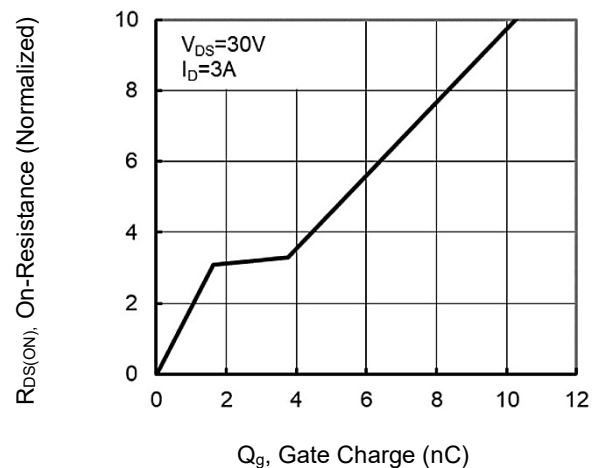
On-Resistance vs. Junction Temperature



Capacitance

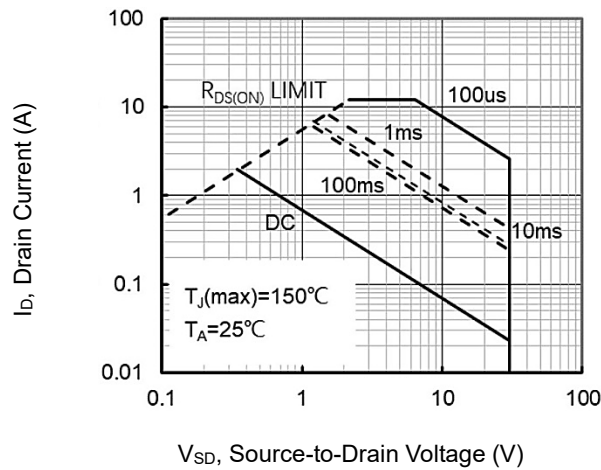


Gate Charge

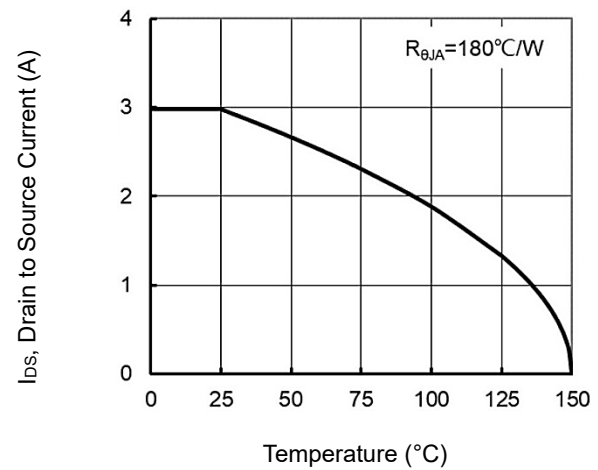


CHARACTERISTIC CURVES

Safe Operating Area



Continuous Drain Current



Normalized Transient Thermal Impedance vs Pulse Width

