

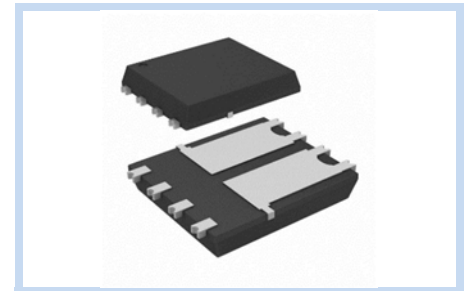
2N Channel MOSFET
100V 34A 32.7W DFN5×6-8L

MFT102N34D56A

MERITEK

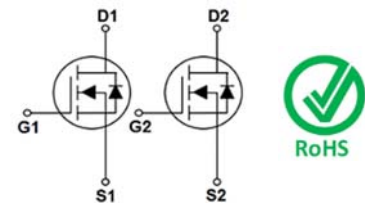
FEATURE

- $R_{DS(ON)} < 21m\Omega$, $V_{GS}=10V$, $I_D=7A$
- $R_{DS(ON)} < 26m\Omega$, $V_{GS}=4.5V$, $I_D=5A$
- Advanced Trench Process Technology
- AEC-Q101 qualified



MECHANICAL DATA

- Case: DFN5×6-8L Package
- Terminals: Solderable per MIL-STD-750, Method 2026

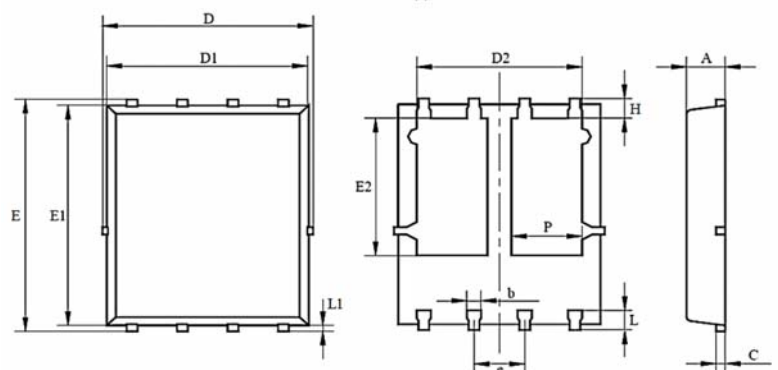


MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current – Continuous	I_D	$T_A= 25^{\circ}C$	34
		$T_A= 100^{\circ}C$	21
Drain Current – Pulsed	I_{DM}	130	A
Avalanche Current	I_{AS}	17.4	A
Power Dissipation	P_D	32.7	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	80	$^{\circ}C/W$
Operating Junction and Storage Temperature	T_J, T_{STG}	-55 to +150	$^{\circ}C$

DIMENSIONS

DFN5×6-8L	Min (mm)	Max (mm)
A	0.90	1.12
b	0.33	0.51
C	0.11	0.34
D	4.70	5.26
D1	4.70	5.10
D2	3.56	4.50
E	5.75	6.25
E1	5.60	6.00
E2	3.18	3.66
e	1.17	1.37
L	0.35	0.71
L1	0.06	0.20
H	0.35	0.71
P	1.70	2.30



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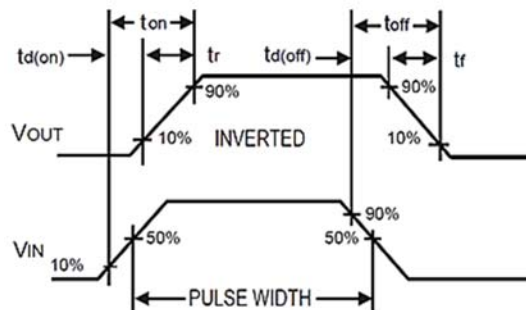
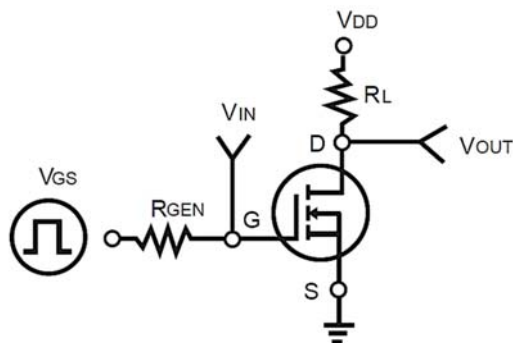
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ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	100			V
Drain-Source Leakage Current	$V_{DS}=80V, V_{GS}=0V,$	I_{DSS}			1	μA
Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}			± 100	nA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=7A$	$R_{DS(ON)}$		15	21	m Ω
	$V_{GS}=4.5V, I_D=5A$				26	
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	1.2		2.5	V
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=50V, V_{GS}=4.5V, I_D=7A$	Q_g		12		nC
				22		
Gate-Source Charge	$V_{DS}=50V, V_{GS}=10V, I_D=7A$	Q_{gs}		4		nC
Gate-Drain Charge		Q_{gd}		6		
Turn-On Delay Time	$V_{DS}=50V, V_{GS}=10V, R_G=4.7\Omega, I_D=7A,$	$T_{d(on)}$		12.0		ns
Rise Time		T_r		3.5		
Turn-Off Delay Time		$T_{d(off)}$		11.0		
Fall Time		T_f		4.0		
Input Capacitance		C_{iss}		1028		
Output Capacitance	C_{oss}		170			
Reverse Transfer Capacitance	C_{rss}		7			
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Current	-	I_S			34	A
Diode Forward Voltage	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	V_{SD}			1.2	V

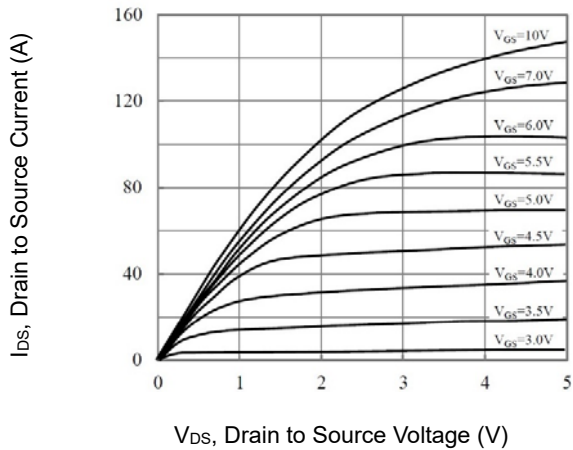
Note:

1. Pulse width $\leq 100\mu s$, duty cycles $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics
3. Guaranteed by design, not test in mass production
4. The maximum current rating is package limited
5. Surface mounted on FR4 board, 2oz copper, with 1 inch² copper plate in still air.

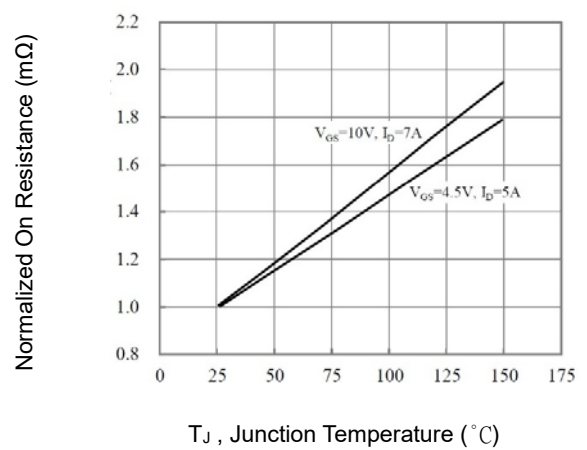


CHARACTERISTIC CURVES

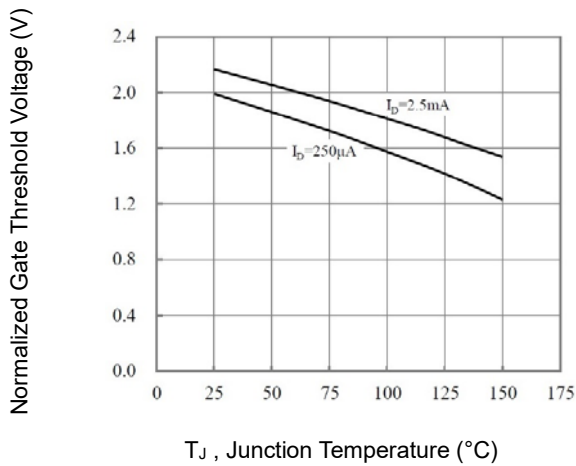
On-Region Characteristics



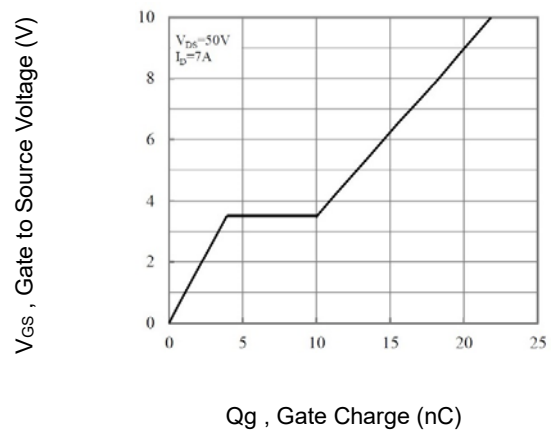
Normalized $R_{DS(ON)}$ vs. T_J



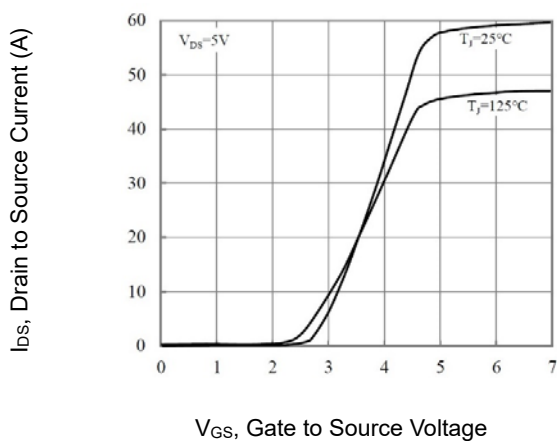
Normalized V_{th} vs. T_J



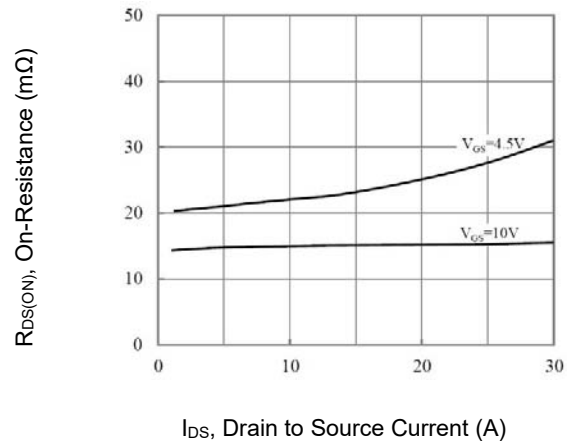
Gate Charge Waveform



Transfer Characteristics

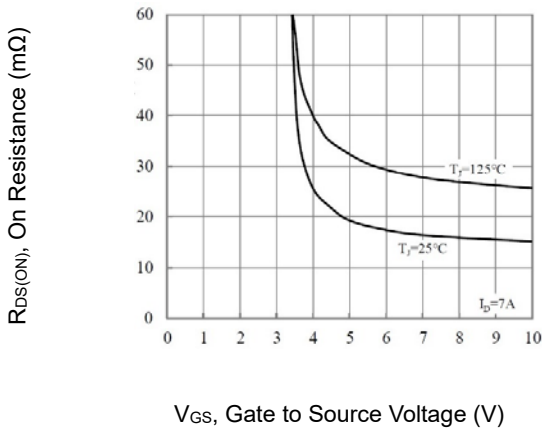


On-Resistance vs. Drain Current

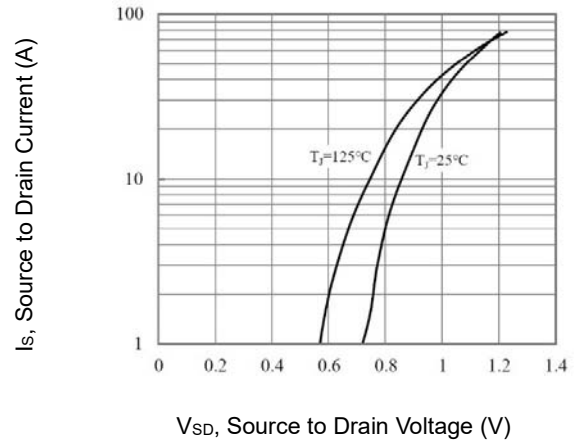


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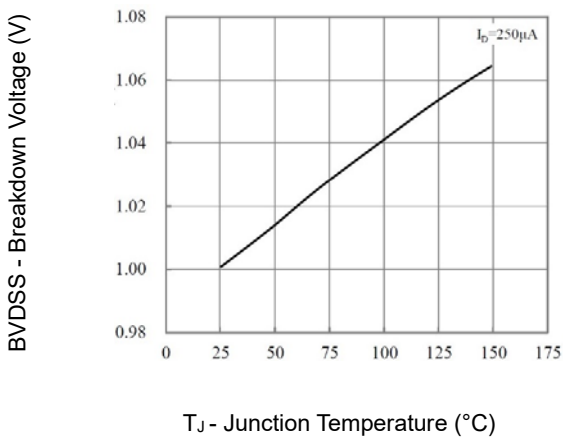
On-Resistance Variation with VGS



Body Diode



Breakdown Voltage vs Junction Temperature



Capacitance vs. Drain-Source Voltage

