

N-Channel MOSFET

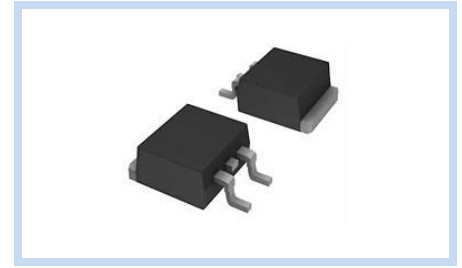
60V 150A 147W TO-263 ESD

MFT6N150T263E

MERITEK

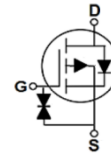
FEATURE

- $R_{DS(ON)} \leq 3.5m\Omega$ at $V_{GS}=10V$
- $R_{DS(ON)} \leq 5.0m\Omega$ at $V_{GS}=4.5V$
- High Power and Current Handling Capability
- High Density Cell Design for Low $R_{DS(ON)}$
- Application: Synchronous Rectification, Battery Protection Circuit, Motor Drivers, Uninterruptible Power Supplies



MECHANICAL DATA

- Case: TO-263 Package
- Terminals: Solderable per MIL-STD-750, Method 2026



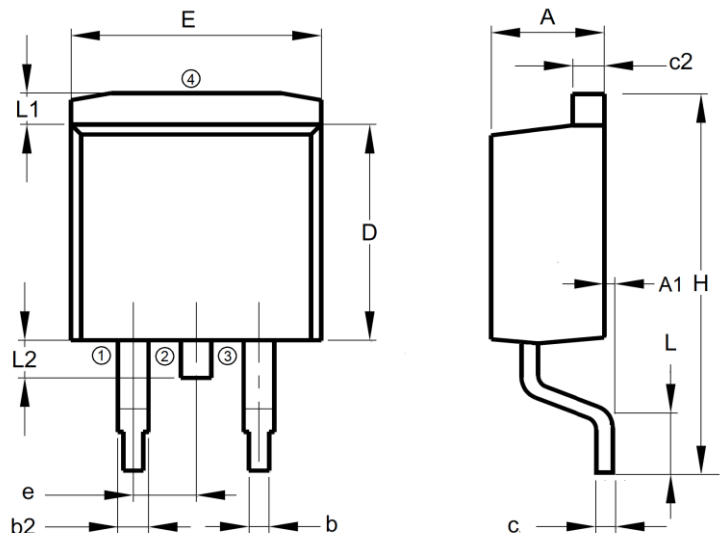
MAXIMUM RATINGS

Parameter	Symbol	Value	Unit	
Drain-Source Voltage	V_{DS}	60	V	
Gate-Source Voltage	V_{GS}	± 20	V	
Drain Current – Continuous	I_D	$T_C=25^\circ C$	150	A
		$T_C=100^\circ C$	95	A
Drain Current – Pulsed	I_{DM}	450	A	
Power Dissipation	P_D	147	W	
Single Pulsed Avalanche Energy	E_{AS}	441	mJ	
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	60	$^\circ C/W$	
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.85	$^\circ C/W$	
Operating Junction and Storage Temperature	T_J, T_{STG}	-55 to 150	$^\circ C$	

DIMENSIONS

Item	Min (mm)	Max (mm)
A	4.43	4.73
A1	0.00	0.25
b	0.72	0.92
b2	1.18	1.38
c	0.33	0.45
c2	1.22	1.34
D	8.55	8.85
E	10.00	10.30
e	2.54 BSC	
H	14.50	15.50
L	1.79	2.79
L1	1.12	1.42
L2	0.77	1.77

Note: Pin 1:Gate; Pin 2:Drain; Pin 3:Source



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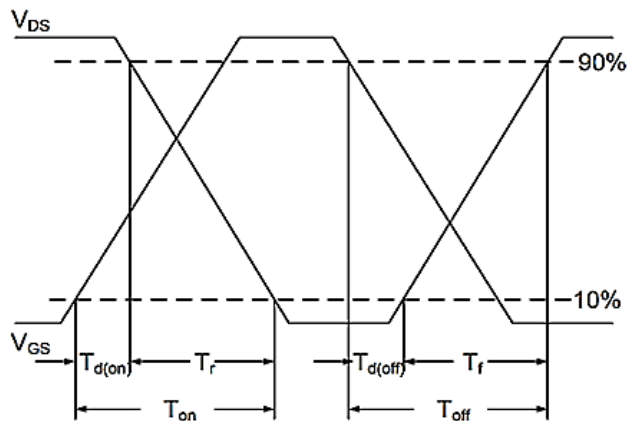
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60	--	--	V
Drain-Source Leakage Current	$V_{DS}=60V, V_{GS}=0V$	I_{DSS}	--	--	1	μA
Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSSF}	--	--	± 10	nA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$	$R_{DS(ON)}$	--	2.7	3.5	m Ω
	$V_{GS}=4.5V, I_D=20A$		--	3.5	5.0	
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	1.7	2.5	V
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=30V, V_{GS}=10V, I_D=25A$	Q_g	--	71	--	nC
Gate-Source Charge		Q_{gs}	--	17	--	
Gate-Drain Charge		Q_{gd}	--	10.5	--	
Turn-On Delay Time	$V_{DD}=30V, V_{GS}=10V, R_G=2\Omega, I_D=25A$	$T_{d(on)}$	--	15.9	--	ns
Rise Time		T_r	--	55.2	--	
Turn-Off Delay Time		$T_{d(off)}$	--	57.5	--	
Fall Time		T_f	--	91.3	--	
Input Capacitance	$V_{DS}=30V, V_{GS}=0V, F=1MHz$	C_{iss}	--	4650	--	pF
Output Capacitance		C_{oss}	--	850	--	
Reverse Transfer Capacitance		C_{rss}	--	65	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Diode Forward Current	--	I_S	--	--	150	A
Diode Forward Voltage	$V_{GS}=0V, I_S=20A$	V_{SD}	--	--	1.3	V
Reverse Recovery Time	$T_J=25^\circ C, I_F=20A$	t_{rr}	--	41.6	--	ns
Reverse Recovery Charge	$di/dt=100A/\mu s$	Q_{rr}	--	39.8	--	nC

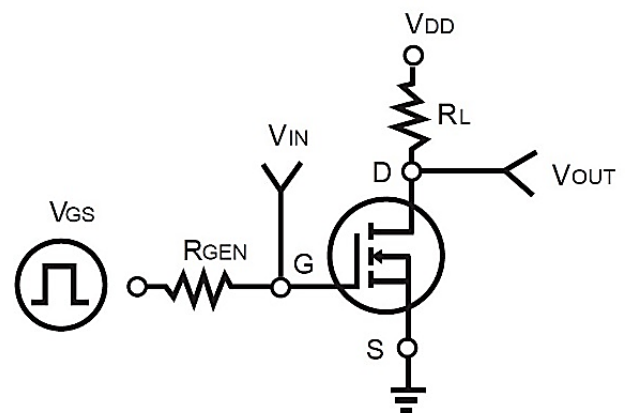
Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Switching Time Waveform

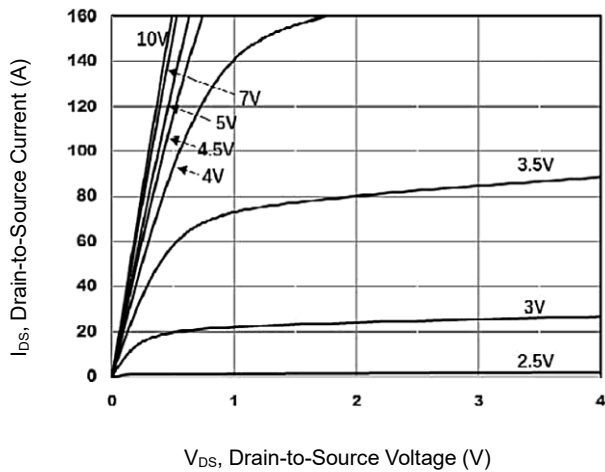


Switching Test Circuit

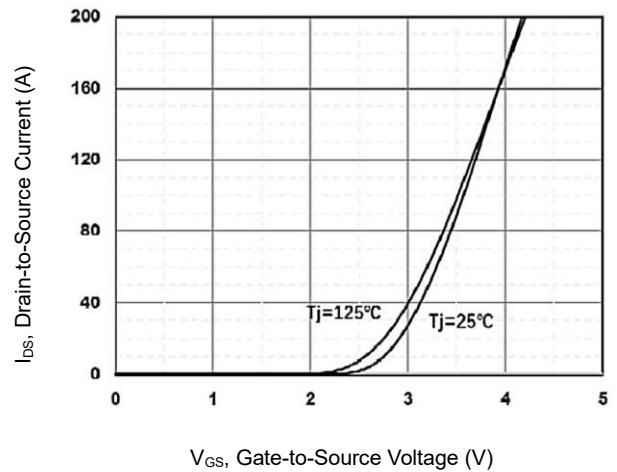


CHARACTERISTIC CURVES

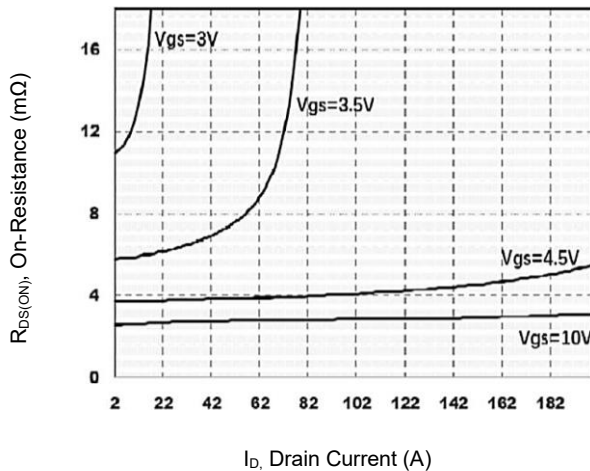
Output Characteristics



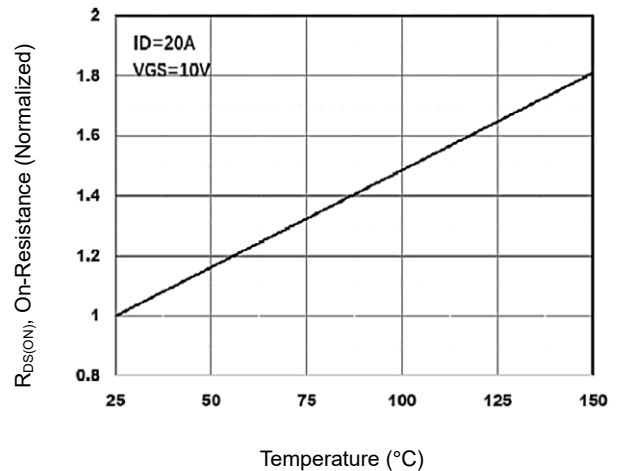
Transfer Characteristics



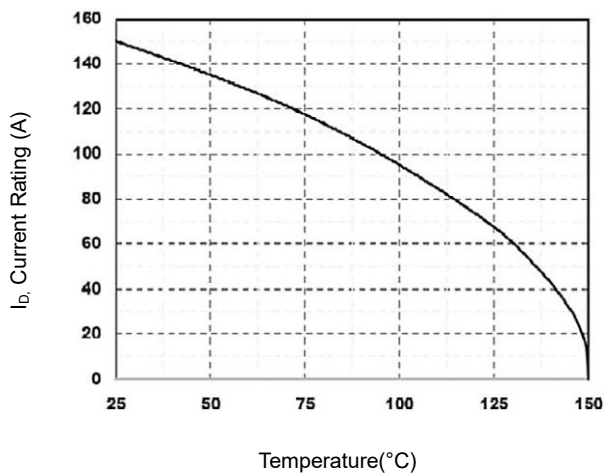
On-Resistance vs. Drain Current and Gate Voltage



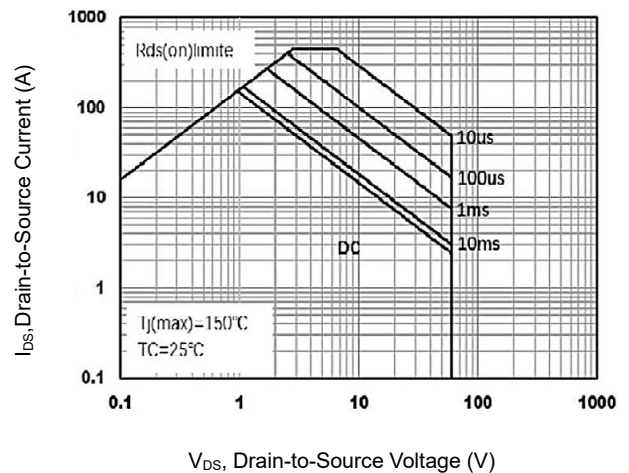
Normalized On-Resistance vs. Temperature



Drain Current

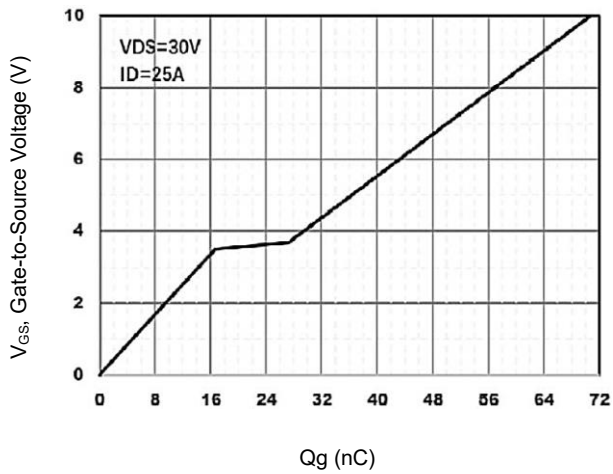


Maximum Safe Operating Area

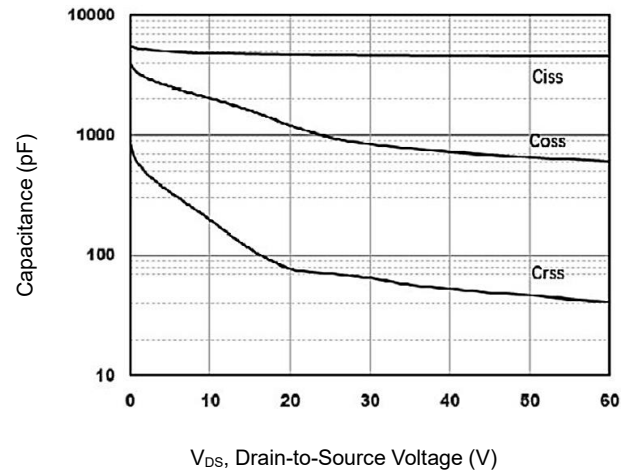


CHARACTERISTIC CURVES

Gate-Charge Characteristics



Capacitance vs. Drain-Source Voltage



Normalized Transient Thermal Impedance vs Pulse Width

