

N-Channel MOSFET

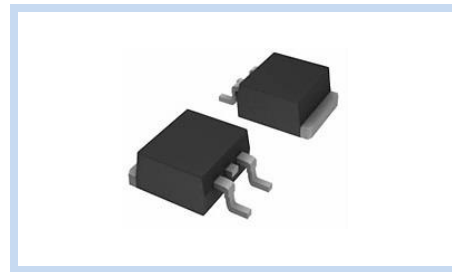
650V 26A 237W TO-263

MFT65N26T263

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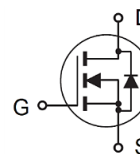
FEATURE

- $R_{DS(ON)} < 130m\Omega$ at $V_{GS}=10$
- Ultra Low On-Resistance and Conduction Losses
- Super Fast Diode Reverse Recovery Speed
- Super High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Ultra Low Gate Charge Cause Lower Driving Requirements
- Application: Power Factor Correction, On-Board Charger, Switched Mode Power Supplies



MECHANICAL DATA

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



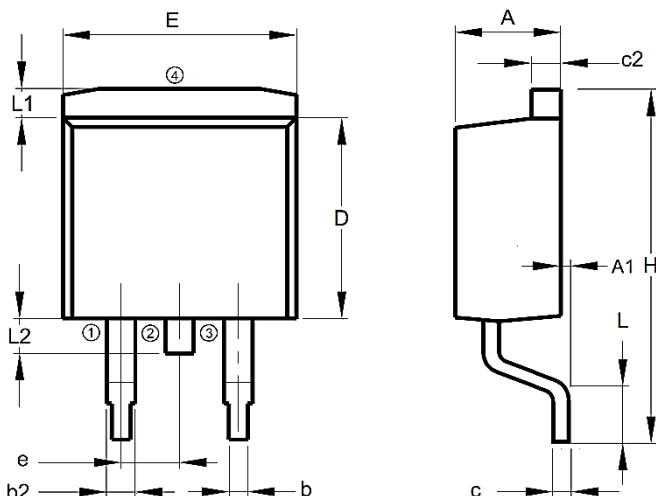
MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	AC (f > 1Hz)	± 30
		Static	± 20
Drain Current – Continuous	I_D	$T_C=25^\circ C$	26
		$T_C=100^\circ C$	18.2
Drain Current – Pulsed	I_{DM}	78	A
Power Dissipation	P_D	237	W
Single Pulsed Avalanche Current	I_{AS}	7	A
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62	$^\circ C/W$
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.63	$^\circ C/W$
Operating Junction Temperature	T_J	175	$^\circ C$
Operating Storage Temperature	T_{STG}	-55 to 175	$^\circ C$

DIMENSIONS

Item	Min (mm)	Max (mm)
A	4.40	4.60
A1	0.00	0.25
b	0.76	0.89
b2	1.23	1.37
c	0.47	0.60
c2	1.25	1.35
D	9.10	9.30
E	9.80	10.00
e	2.54	
H	14.90	15.70
L	2.00	2.60
L1	1.17	1.40
L2	--	1.75

Note: 1: Gate, 2: Drain, 3: Source



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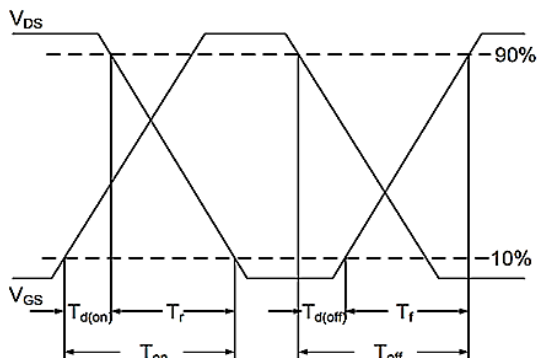
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	650	--	--	V
Drain-Source Leakage Current	$V_{DS}=650V, V_{GS}=0V, T_C=25^\circ C$	I_{DSS}	--	--	10	μA
	$V_{DS}=650V, V_{GS}=0V, T_C=125^\circ C$		--	--	400	
Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSSF}	--	--	± 100	nA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=13A$	$R_{DS(on)}$	--	110	130	m Ω
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=500\mu A$	$V_{GS(th)}$	3.5	4.2	5.0	V
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=480V, V_{GS}=10V, I_D=13A$	Q_g	--	41.2	--	nC
Gate-Source Charge		Q_{gs}	--	16.3	--	
Gate-Drain Charge		Q_{gd}	--	12.8	--	
Gate Plateau Volitage		V_{gp}	--	7	--	V
Turn-On Delay Time	$V_{DD}=380V, V_{GS}=10V, R_G=1.7\Omega, I_D=13A$	$T_{d(on)}$	--	43	--	ns
Rise Time		T_r	--	16	--	
Turn-Off Delay Time		$T_{d(off)}$	--	93	--	
Fall Time		T_f	--	20	--	
Input Capacitance	$V_{DS}=50V, V_{GS}=0V, F=1MHz$	C_{iss}	--	2161	--	pF
Output Capacitance		C_{oss}	--	95	--	
Reverse Transfer Capacitance		C_{rss}	--	50	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Current	$T_C=25^\circ C$	I_{SD}	--	--	26	A
Pulse Diode Forward Current		I_{SDM}	--	--	78	
Diode Forward Voltage	$V_{GS}=0V, I_S=26A$	V_{SD}	--	--	1.2	V
Reverse Recovery Time	$T_C=25^\circ C, I_F=13A, di/dt=100A/\mu s$	t_{rr}	--	145	--	Ns
Reverse Recovery Charge		Q_{rr}	--	725	--	nC
Peak Reverse Recovery Current		I_{rrm}	--	10	--	A

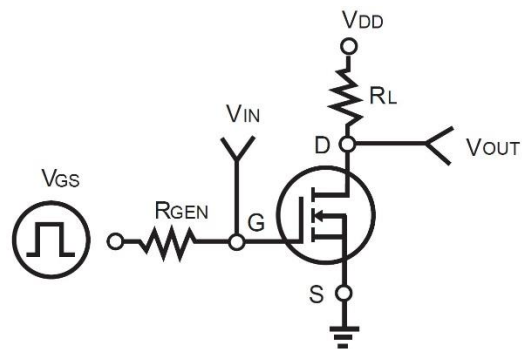
Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. $V_G = 10V, V_{DD} = 50V, R_G = 25\Omega$, Starting $T_J = 25^\circ C$

Switching Time Waveform



Switching Test Circuit



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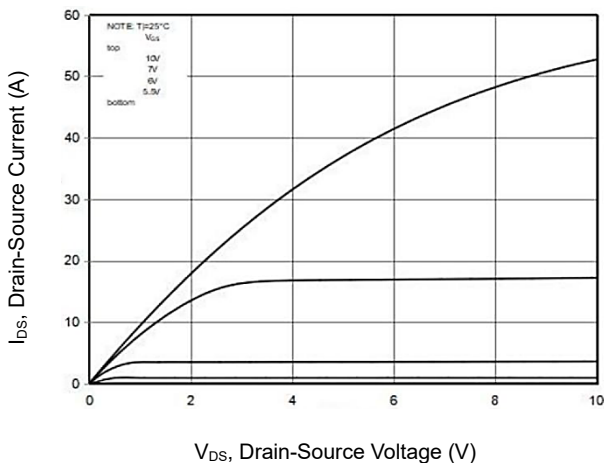
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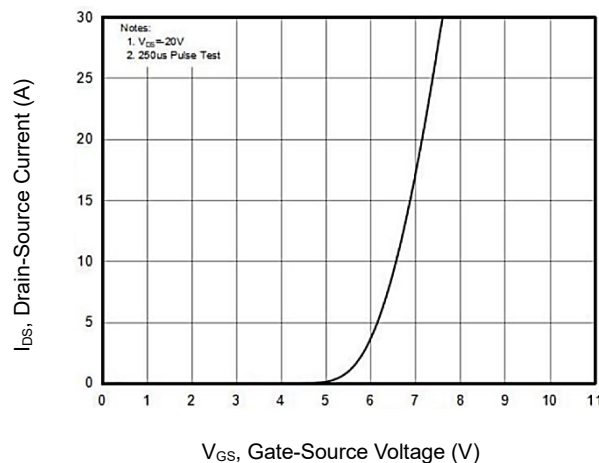
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CHARACTERISTIC CURVES

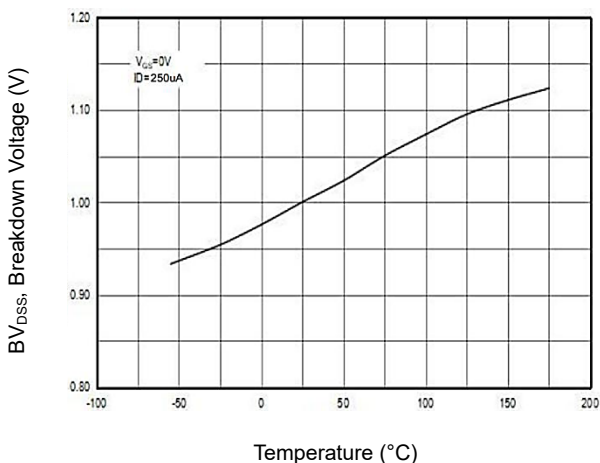
Output Characteristics



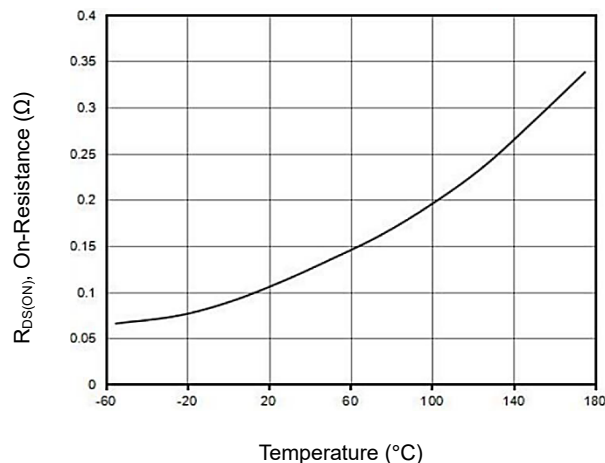
Transfer Characteristics



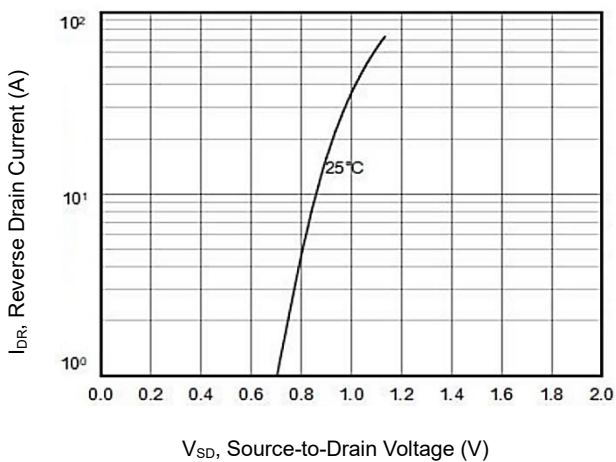
Breakdown Voltage



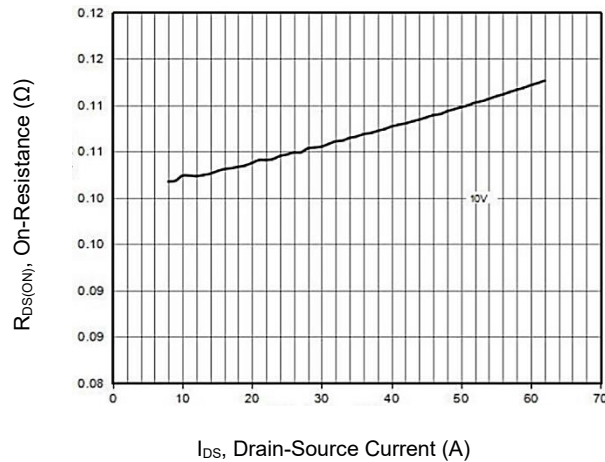
On-Resistance vs. Junction Temperature



Body Diode Forward Voltage

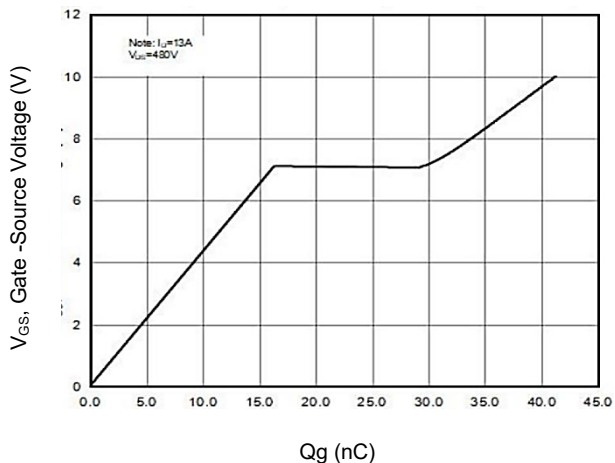


On-Resistance vs. Drain-Source Current

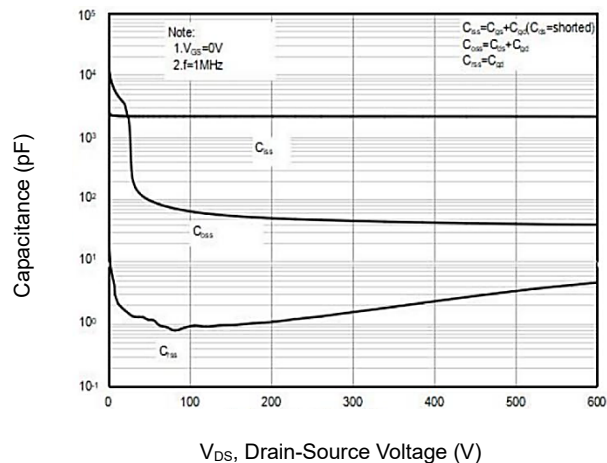


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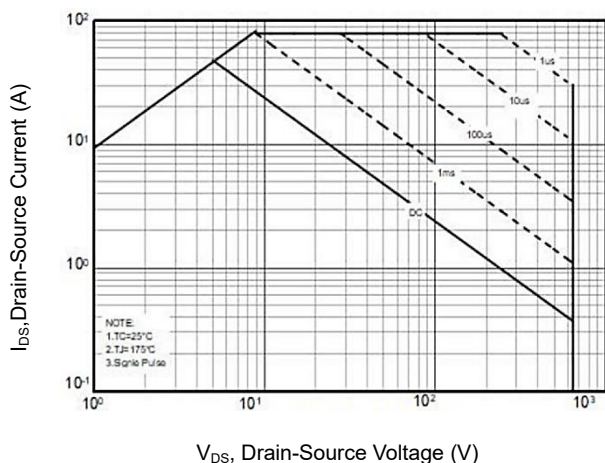
Gate Charge Characteristics



Output Capacitance



Maximum Safe Operating Area



Drain-to-Source Current

