

P-Channel MOSFET

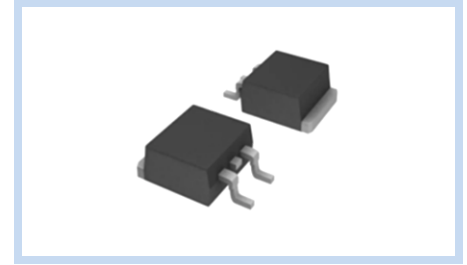
60V 82A 150W TO-263

MFT6P82T263

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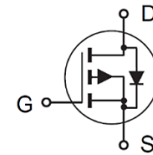
FEATURE

- $R_{DS(ON)} \leq 13m\Omega$, $V_{GS} = -10V$
- High Density Cell Design
- Fully Characterized Avalanche Voltage and Current
- Good Stability and Uniformity with High E_{AS}
- Applications: DC/DC Converters, Reverse Polarity Protection, Load Switching, Low-Voltage Drives, Onboard Chargers



MECHANICAL DATA

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



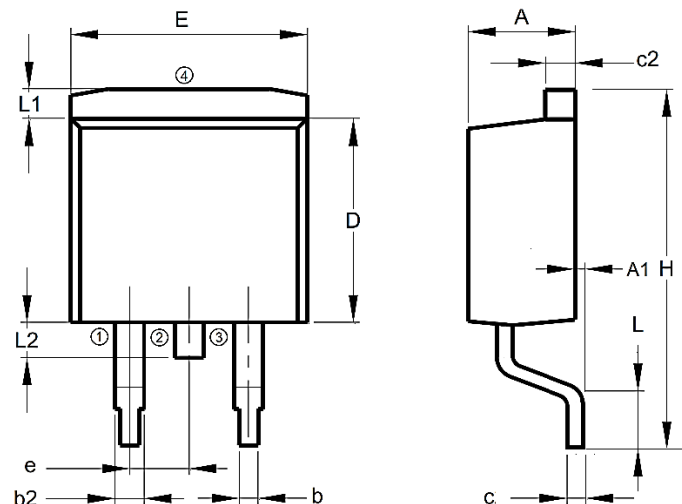
MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	± 20	
Drain Current – Continuous	$T_C = 25^\circ C$	I_D	-82	A
	$T_C = 100^\circ C$		-58	
Drain Current – Pulsed		I_{DM}	-328	
Power Dissipation		P_D	150	W
Single Pulsed Avalanche Energy		E_{AS}	722	mJ
Thermal Resistance Junction to Case		$R_{\theta JC}$	1.0	$^\circ C/W$
Operating Junction		T_J	175	$^\circ C$
Storage Temperature		T_{STG}	-55 to 175	

DIMENSIONS

Item	Min (mm)	Max (mm)
A	4.20	4.67
A1	0.00	0.25
b	0.70	0.91
b2	1.17	1.75
c	0.31	0.60
c2	1.15	1.40
D	8.50	9.30
E	9.78	10.36
e	2.54 BSC.	
H	14.61	15.88
L	1.78	2.79
L1	1.36 REF.	
L2	1.50 REF.	

Note: 1: Gate, 2,4: 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}	-60	--	--	V
Zero Gate Voltage Drain Current	$V_{DS}=-60V, V_{GS}=0V$	I_{DSS}	--	--	-1	μA
Gate-Body 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	$V_{GS}=-10V, I_D=-20A$	$R_{DS(ON)}$	--	11	13	m Ω
	$V_{GS}=-4.5V, I_D=-20A$		--	13	16	
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	$V_{GS(th)}$	-1.2	-1.8	-2.4	V
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=-30V, V_{GS}=-10V, I_D=-20A$	Q_g	--	62.1	--	nC
Gate-Source Charge		Q_{gs}	--	9.3	--	
Gate-Drain Charge		Q_{gd}	--	16.8	--	
Turn-On Delay Time	$V_{DD}=-30V, V_{GS}=-10V, R_L=1.5\Omega, R_G=3\Omega$	$T_{d(on)}$	--	18	--	ns
Rise Time		T_r	--	20	--	
Turn-Off Delay Time		$T_{d(off)}$	--	55	--	
Fall Time		T_f	--	35	--	
Input Capacitance	$V_{DS}=-30V, V_{GS}=0V, F=1MHz$	C_{iss}	--	5604	--	pF
Output Capacitance		C_{oss}	--	356	--	
Reverse Transfer Capacitance		C_{rss}	--	265	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Current		I_S	--	--	-82	A
Diode Forward Voltage	$V_{GS}=0V, I_S=-20A$	V_{SD}	--	--	-1.2	V
Reverse Recovery Time	$T_J=25^\circ C, I_F=-20A$	T_{rr}	--	49	--	ns
Reverse Recovery Charge	$di/dt=100A/\mu s$	Q_{rr}	--	71	--	nC

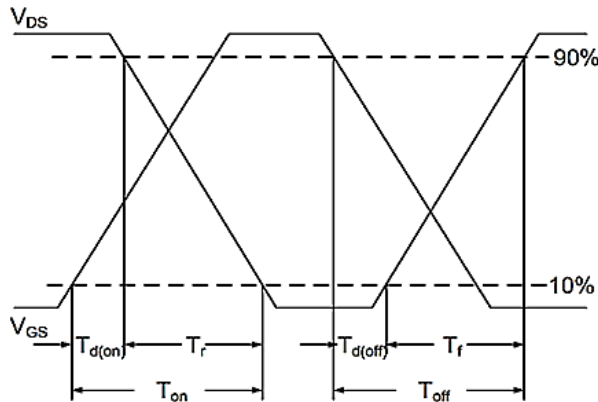
Note:

1. The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$.

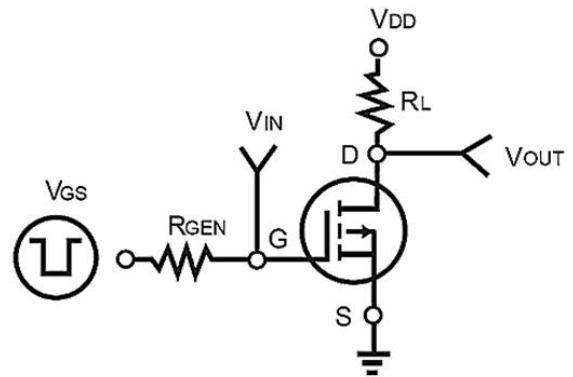
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

3. E_{AS} condition: $T_J=25^\circ C$, $V_{DD}=-30V$, $V_G=-10V$, $L=0.5mH$, $R_G=25\Omega$.

Switching Time Waveform



Switching Test Circuit



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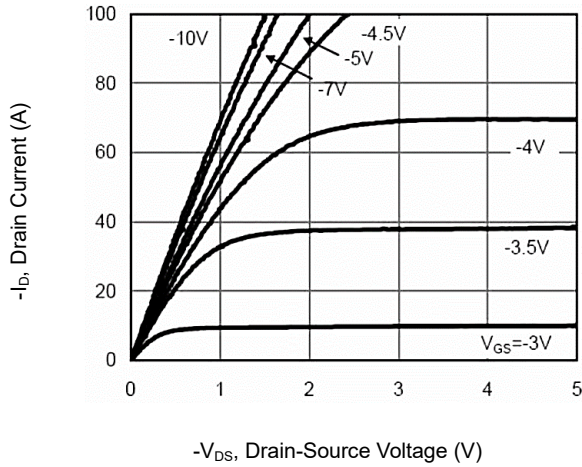
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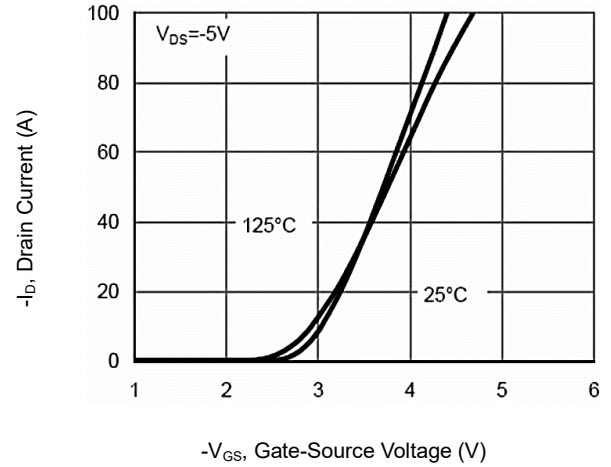
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CHARACTERISTIC CURVES

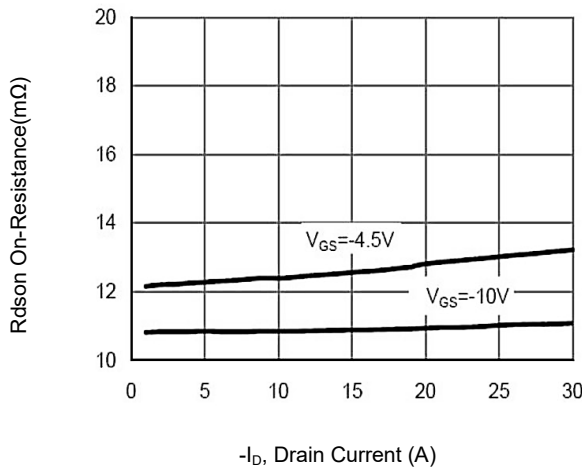
Output Characteristics



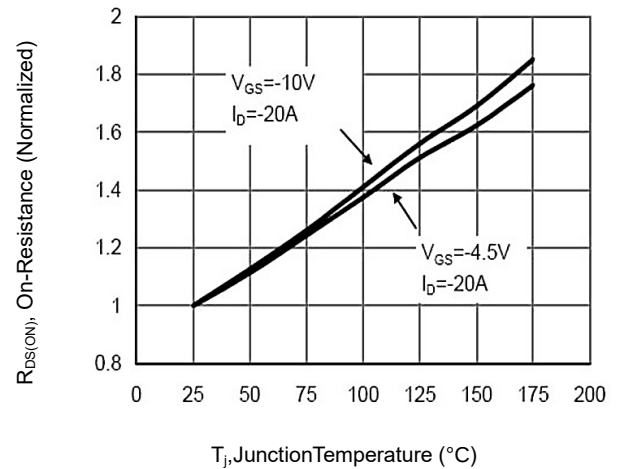
Transfer Characteristics



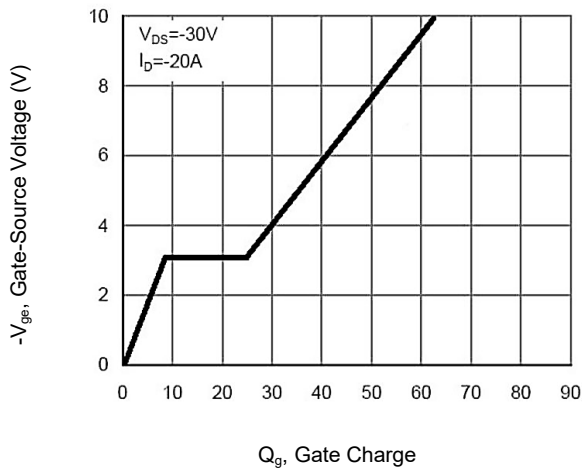
$R_{ds(on)}$ -Drain Current



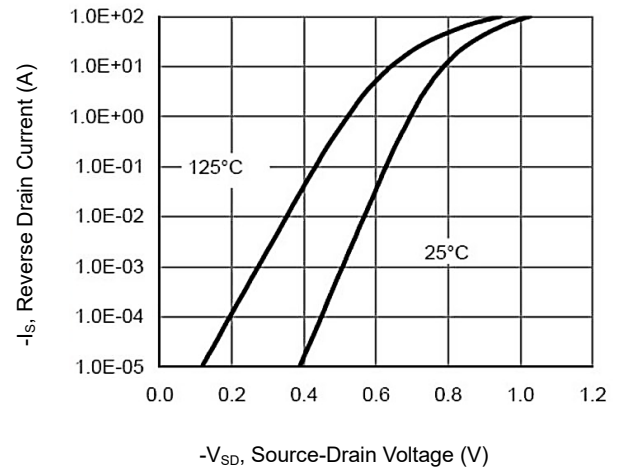
$R_{ds(on)}$ -Junction Temperature



Gate-Charge Characteristics



Source-Drain Diode Forward



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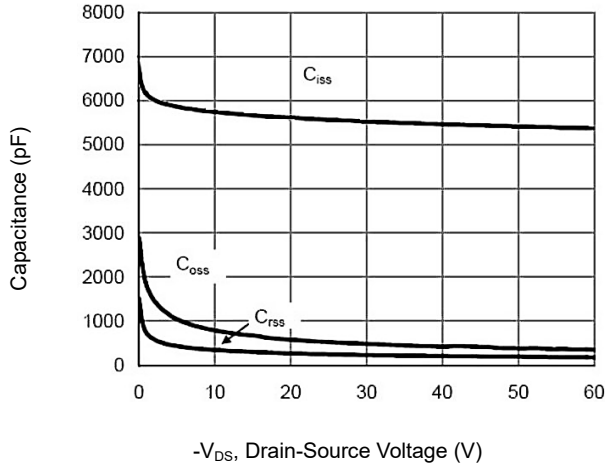
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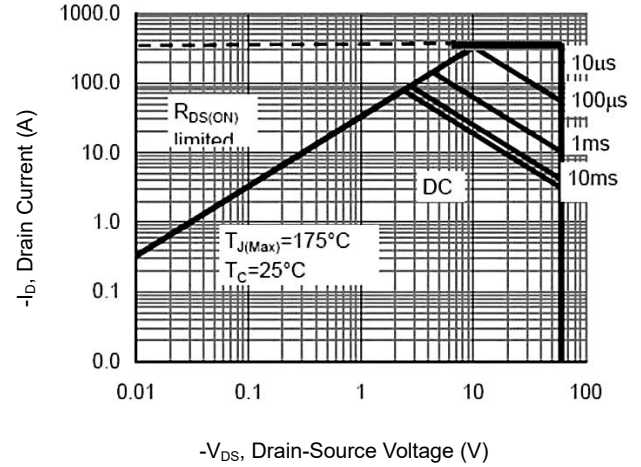
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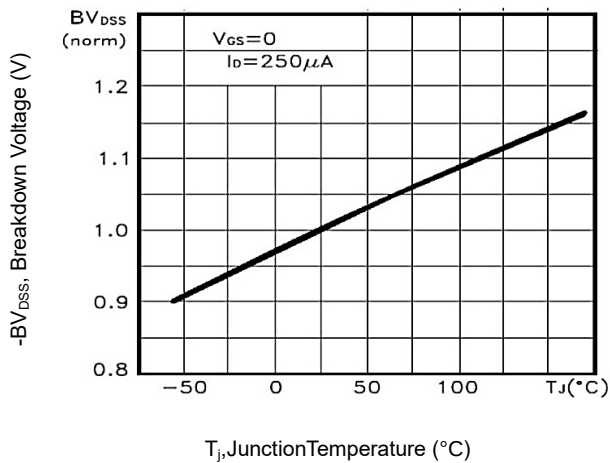
Capacitance vs. Drain-Source Voltage



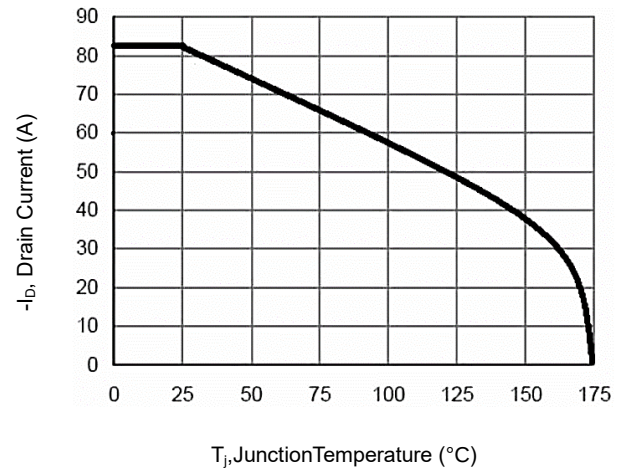
Safe Operation Area



Breakdown Voltage vs. Temperature



Current Derating vs. Temperature



Normalized Transient Thermal Impedance

