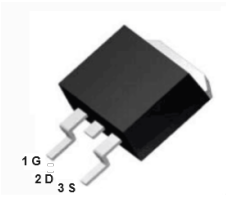
30 V N-Channel MOSFET

Features

- V_{DS}(V) =30V
- I_D =80A (V_{GS}= 10V)
- $R_{DS(ON)}$ <1.9mΩ (V_{GS} =10V)
- $R_{DS(ON)}$ <2.2mΩ (V_{GS} =4.5V)
- Low Miller Charge
- Low Q_{rr} Body Diode
- UIS Capability (Single Pulse and Repetitive Pulse)



TO-263

Applications

- Starter / Alternator Systems
- Electronic Power Steering Systems
- DC-DC Converters

MOSFET Maximum Ratings T_C = 25°C unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{DSS}	Drain to Source Voltage	30	V
V_{GS}	Gate to Source Voltage	±20	V
I_D	Drain Current Continuous (T_C < 165°C, V_{GS} = 10V)	80	A
	Drain Current Continuous (T_C < 163°C, V_{GS} = 5V)	80	
	Drain Current Continuous (T_{amb} = 25°C, V_{GS} = 10V, with $R_{\theta JA}$ = 43°C/W)	34	
	Pulsed	See Figure 4	
E_{AS}	Single Pulse Avalanche Energy (Note 1)	1246	mJ
P_D	Power Dissipation	300	W
	Derate above 25°C	2	W/°C
T_J, T_{STG}	Operating and Storage Temperature	-55 to +175	°C

$R_{\theta JC}$	Thermal Resistance, Junction to Case	0.5	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient (Note 2)	62	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient, lin^2 copper pad area	43	°C/W

Electrical Characteristics T_J = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
B_{VDSS}	Drain to Source Breakdown Voltage	I_D = 250μA, V_{GS} = 0V	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 24V, V_{GS} = 0V			1	μA
		V_{DS} = 24V, V_{GS} = 0V, T_J = 150°C			250	
I_{GSS}	Gate to Source Leakage Current	V_{GS} = ±20V			±100	nA
$V_{GS(th)}$	Gate to Source Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.6	3.0	V
$r_{DS(on)}$	Drain to Source On Resistance	I_D = 80A, V_{GS} = 10V		1.4	1.9	mΩ
		I_D = 80A, V_{GS} = 5V		1.5	2.1	
		I_D = 80A, V_{GS} = 4.5V		1.6	2.2	
C_{iss}	Input Capacitance	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		11400		pF
C_{oss}	Output Capacitance			2140		pF
C_{rss}	Reverse Transfer Capacitance			1260		pF
R_G	Gate Resistance	V_{GS} = 0.5V, f = 1MHz		1.2		Ω
$Q_{g(TOT)}$	Total Gate Charge at 10V	V_{GS} = 0 to 10V, V_{DD} = 15V, I_D = 80A, I_g = 1.0mA		204	265	nC
$Q_{g(5)}$	Total Gate Charge at 5V	V_{GS} = 0 to 5V		100	130	nC
$Q_{g(TH)}$	Threshold Gate Charge	V_{GS} = 0 to 1V		10.9	14.2	nC
Q_{gs}	Gate to Source Gate Charge			33		nC
Q_{gs2}	Gate Charge Threshold to Plateau			22		nC
Q_{gd}	Gate to Drain “Miller” Charge			43		nC
$t_{(on)}$	Turn-On Time	V_{DD} = 15V, I_D = 80A, V_{GS} = 5V, R_{GS} = 1.5Ω			155	ns
$t_{d(on)}$	Turn-On Delay Time			24		ns
t_r	Turn-On Rise Time			73		ns
$t_{d(off)}$	Turn-Off Delay Time			54		ns
t_f	Turn-Off Fall Time			38		ns
t_{off}	Turn-Off Time				149	ns
V_{SD}	Source to Drain Diode Voltage	I_{SD} = 75A		0.8	1.25	V
		I_{SD} = 40A		0.8	1.0	V
t_{rr}	Reverse Recovery Time	I_F = 75A, di/dt = 100A/μs		59	77	ns
Q_{rr}	Reverse Recovery Charge	I_F = 75A, di/dt = 100A/μs		67	87	nC

Notes:
1: Starting T_J = 25°C, L = 0.61mH, I_{AS} = 64A, V_{DD} = 30V, V_{GS} = 10V.
2: Pulse width = 100s.

Typical Characteristics

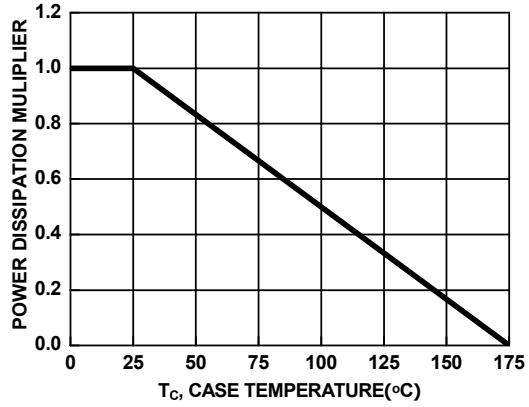


Figure 1. Normalized Power Dissipation vs Case Temperature

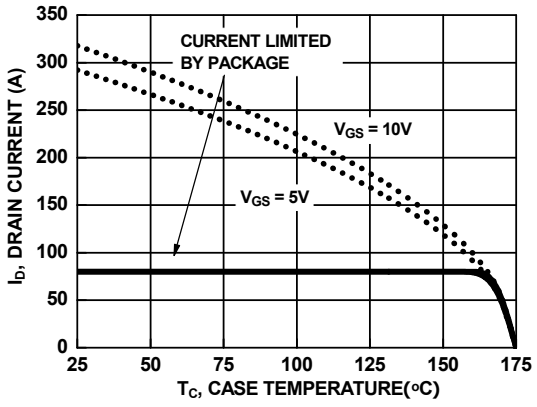


Figure 2. Maximum Continuous Drain Current vs Case Temperature

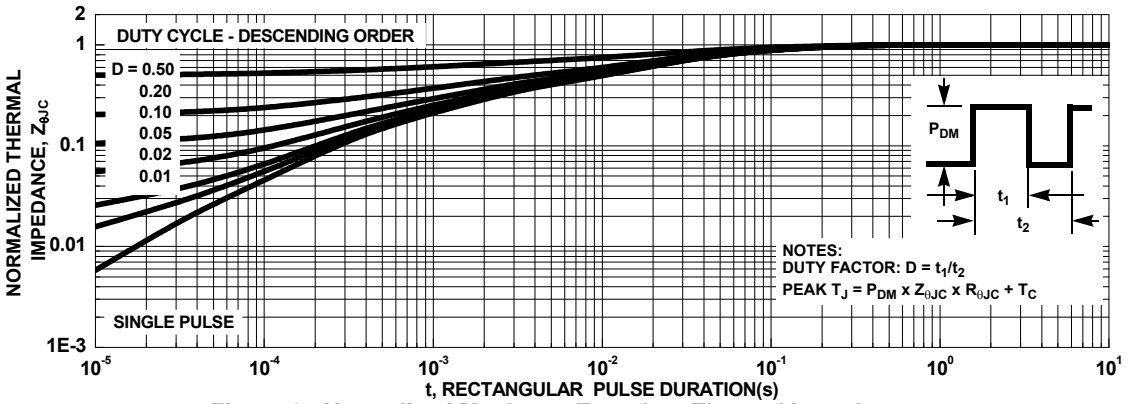


Figure 3. Normalized Maximum Transient Thermal Impedance

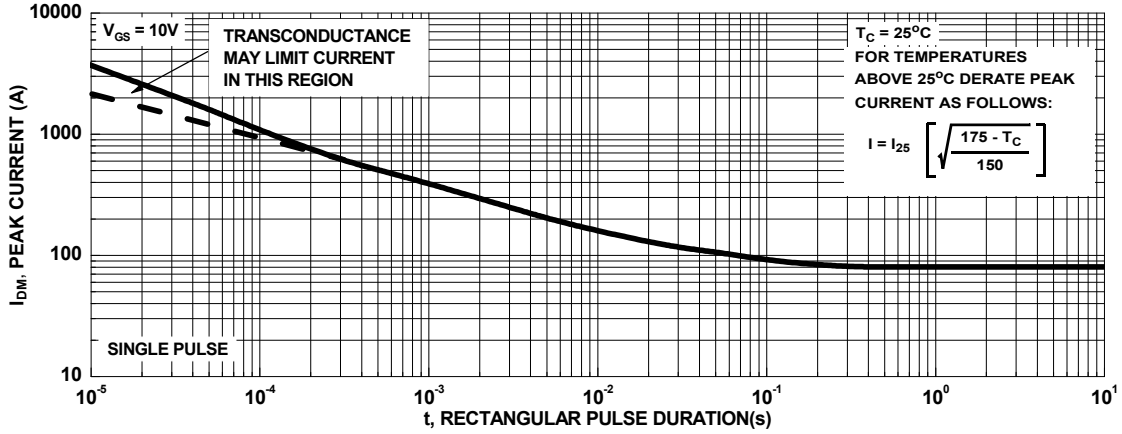


Figure 4. Peak Current Capability

Typical Characteristics

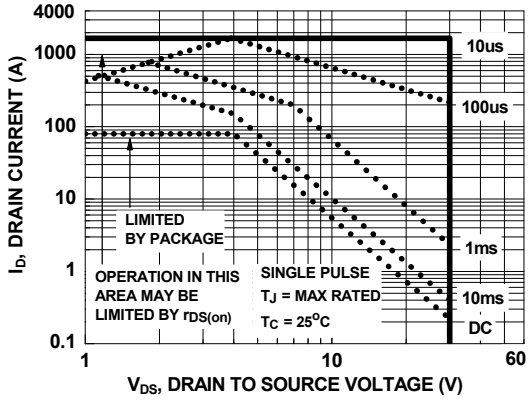
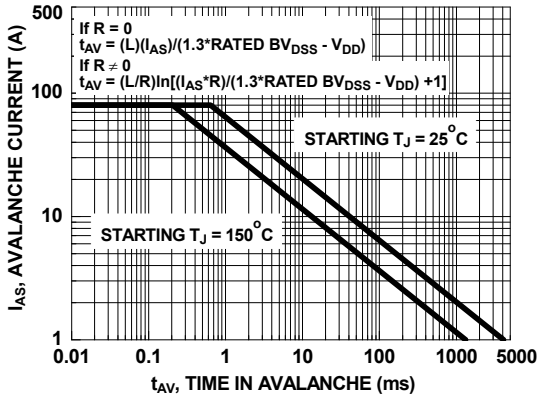


Figure 5. Forward Bias Safe Operating Area



NOTE: Refer to Fairchild Application Notes AN7514 and AN7515

Figure 6. Unclamped Inductive Switching Capability

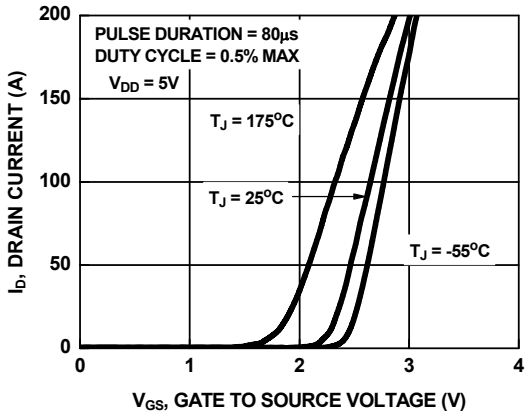


Figure 7. Transfer Characteristics

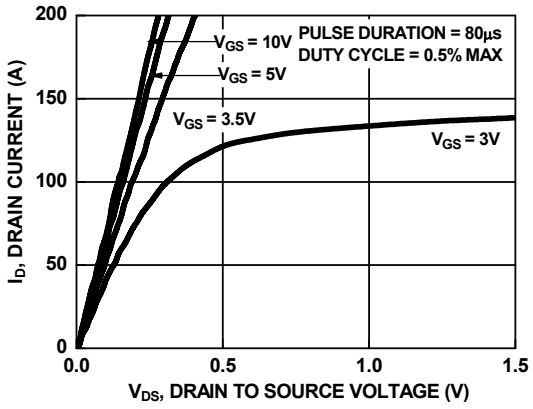


Figure 8. Saturation Characteristics

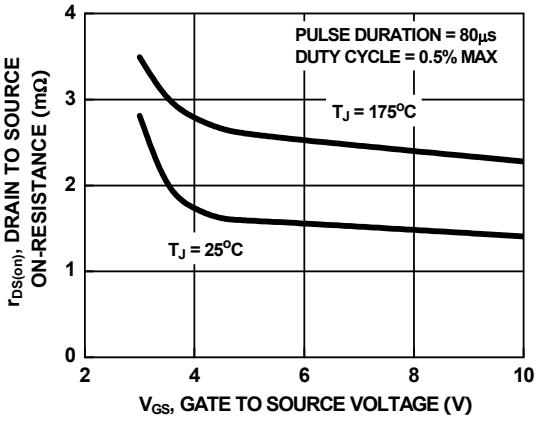


Figure 9. Drain to Source On-Resistance Variation vs Gate to Source Voltage

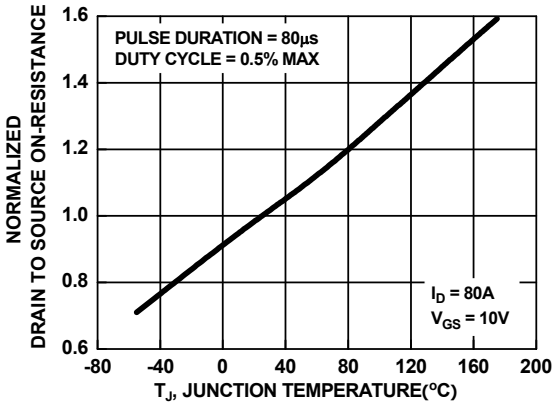


Figure 10. Normalized Drain to Source On Resistance vs Junction Temperature

Typical Characteristics

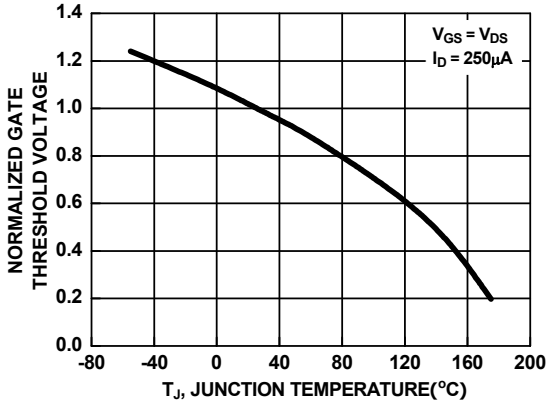


Figure 11. Normalized Gate Threshold Voltage vs Junction Temperature

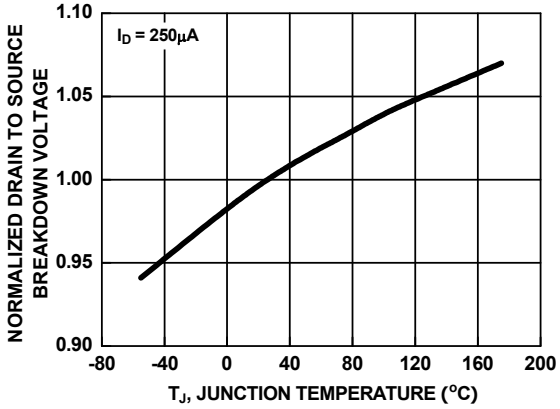


Figure 12. Normalized Drain to Source Breakdown Voltage vs Junction Temperature

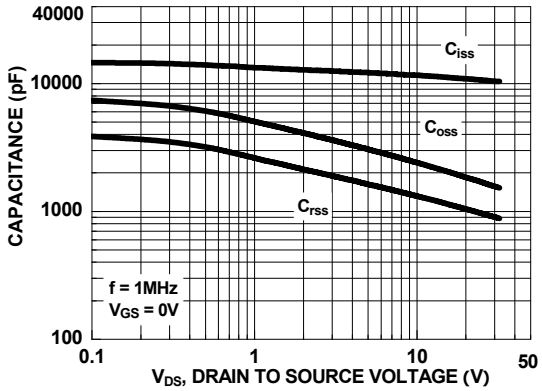


Figure 13. Capacitance vs Drain to Source Voltage

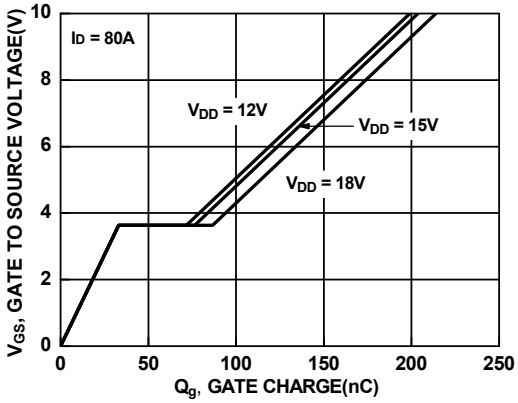
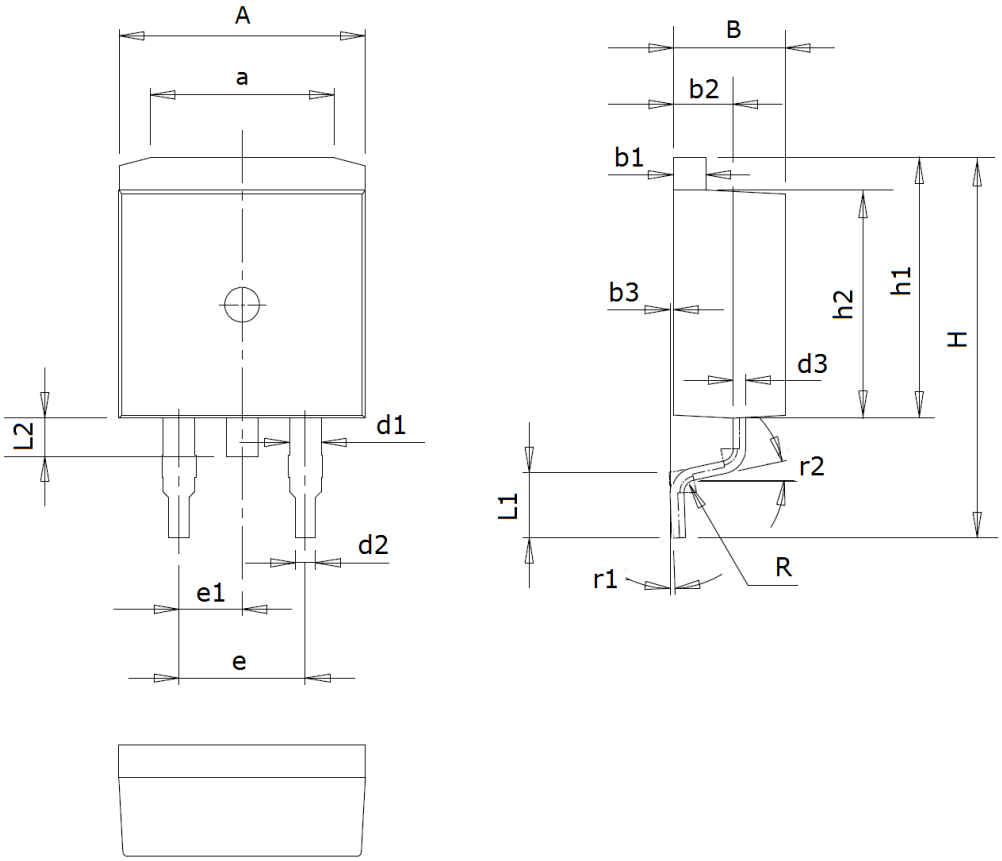


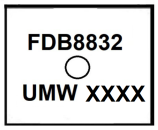
Figure 14. Gate Charge vs Gate to Source Voltage

TO-263 Package Outline Drawing



Symbol	Dimensions （mm）	Symbol	Dimensions (mm)	Symbol	Dimensions (mm)
A	9.7～10.3	d2	0.7～0.9	L1	2.4~2.9
a	7.0～7.8	d3	0.4～0.6	L2	1.3~1.8
B	4.3～4.7	e	5.08（typ）	R	0.5(typ)
b1	1.25～1.35	e1	2.54（typ）	r1	0~8°
b2	2.2～2.6	H	14.8~15.6	r2	12°（typ）
b3	0～0.2	h1	10.2~10.7		
d1	1.2～1.4	h2	8.9~9.4		

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
UMW FDB8832	TO-263	800	Tape and reel

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET ***category:***

Click to view products by Youtai ***manufacturer:***

Other Similar products are found below :

IRFD120 JANTX2N5237 2SK2267(Q) BUK455-60A/B TK100A10N1,S4X(S MIC4420CM-TR VN1206L NDP4060 SI4482DY IRS2092STRPBF-EL IPS70R2K0CEAKMA1 TK31J60W5,S1VQ(O TK31J60W,S1VQ(O TK16J60W,S1VQ(O 2SK2614(TE16L1,Q) DMN1017UCP3-7 EFC2J004NUZTDG P85W28HP2F-7071 DMN1053UCP4-7 NTE2384 DMC2700UDMQ-7 DMN2080UCB4-7 DMN61D9UWQ-13 US6M2GTR DMN31D5UDJ-7 DMP22D4UFO-7B IPS60R3K4CEAKMA1 DMN1006UCA6-7 DMN16M9UCA6-7 STF5N65M6 IRF40H233XTMA1 STU5N65M6 DMN6022SSD-13 DMN13M9UCA6-7 DMTH10H4M6SPS-13 IPS60R360PFD7SAKMA1 DMN2990UFB-7B SSM3K35CT,L3F IPLK60R1K0PFD7ATMA1 2N7002W-G MCAC30N06Y-TP IPWS65R035CFD7AXKSA1 MCQ7328-TP SSM3J143TU,LXHF DMN12M3UCA6-7 PJMF280N65E1_T0_00201 PJMF380N65E1_T0_00201 PJMF280N60E1_T0_00201 PJMF600N65E1_T0_00201 PJMF900N65E1_T0_00201