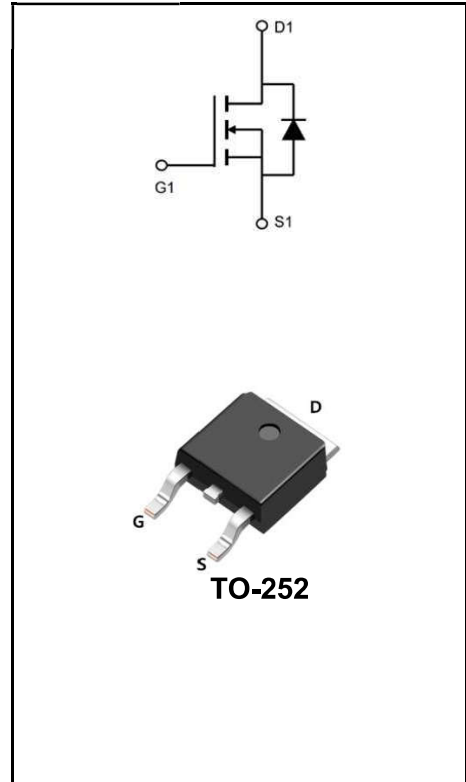


100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	50A
V_{DSS}	100V
R_{DS(ON)}-typ(@V_{GS}=10V)	<28mΩ (Type:24mΩ)



Features

- ◆Fast Switching
- ◆Low ON Resistance
- ◆Low Gate Charge
- ◆100% Single Pulse avalanche energy Test
- ◆LeadfreeincomplywithEURoHS2011/65/EUdirectives

Mechanical Data

- ◆Case: Molded plastic
- ◆Mounting Position: Any
- ◆Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆Solder bath temperature275°C maximum,10s per JESD22-106

Product Specification Classification

Part Number	Package	Marking	Pack
YFW50N10AD	TO-252	YFW 50N10AD XXXXX	2500PCS/Tape

Maximum Ratings At Tc=25°C Unless Otherwise Specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current Continuous	I_D	50	A
Drain Current Continuous (Tc=100°C)	I_D	21	A
Pulsed Drain Current	I_{DM}	70	A
Maximum Power Dissipation	P_D	85	W
Derating factor		0.57	W/°C
Single Pulse Avalanche Energy (Note5)	E_{AS}	256	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +175	°C
Thermal Resistance, Junction-to-Case (Note 2)	R_{θJC}	1.8	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250 μA	BV_{DSS}	100	-	-	V
Zero Gate Voltage Drain Current	V _{DS} = 100 V, V _{GS} = 0 V	I_{DSS}	-	-	1	μA
Gate-Body Leakage Current	V _{GS} = ± 20 V, V _{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250 μA	V_{GS(th)}	1	-	3	V
Drain-Source On-State Resistance	V _{GS} = 10 V, I _D = 20 A	R_{DS(on)}	-	24	28	mΩ
Drain-Source On-State Resistance	V _{GS} = 4.5 V, I _D = 10 A	R_{DS(on)}	-	28	30	mΩ
Forward Transconductance	V _{DS} = 5 V, I _D = 10A	g_{fs}	-	15	-	S
Input Capacitance	V _{DS} = 25 V, V _{GS} = 0 V, f = 1MHz	C_{iss}	-	2000	-	pF
Output Capacitance		C_{oss}	-	300	-	
Reverse Transfer Capacitance		C_{rss}	-	250	-	
Turn-on Delay Time	V _{DD} =50V, R _L =5Ω V _{GS} =10V, R _{GEN} =3Ω	td(ON)	-	7	-	nS
Turn-on Rise Time		tr	-	7	-	
Turn-Off Delay Time		td(OFF)	-	29	-	
Turn-on Fall Time		tf	-	7	-	
Total Gate Charge	V _{DS} =50V, I _D =10A, V _{GS} =10V	Q_G	-	39	-	nC
Gate to Source Charge		Q_{GS}	-	8	-	
Gate to Drain Charge		Q_{GD}	-	12	-	
Diode Forward Voltage (Note 3)	V _{GS} =0V, I _S =20A	V_{SD}	-	1.2	-	V

Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Diode Forward Current (Note 2)		I_s	-	-	30	A
Reverse Recovery Time	T _J = 25°C, I _F = 10A di/dt = 100A/μs (Note3)	trr	-	32	-	nS
Reverse Recovery Charge		Qrr	-	53	-	uC
Forward Turn-On Time		ton	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)			

Note:

- 1、 Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2、 Surface Mounted on FR4 Board, t ≤ 10 sec.
- 3、 Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- 4、 Guaranteed by design, not subject to production
- 5、 EAS Condition : T_j=25°C, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25Ω, I_{AS}=32A

Ratings and Characteristic Curves

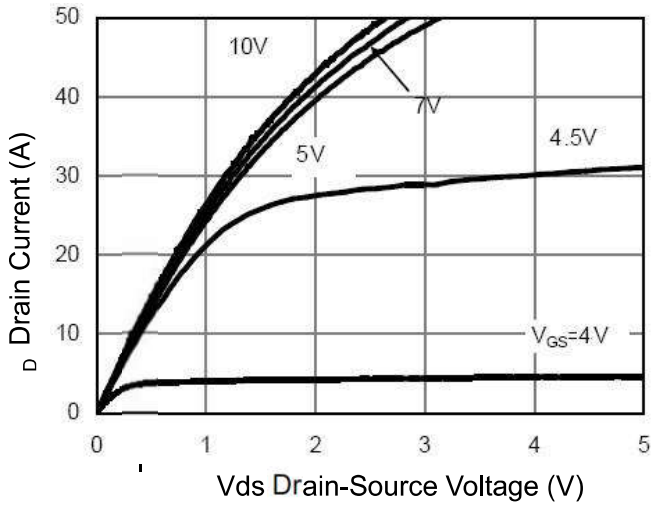


Figure 1 Output Characteristics

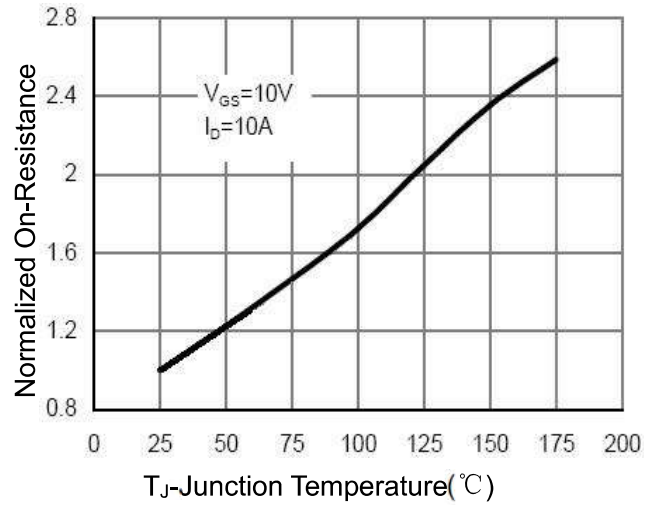


Figure 4 Rdson-Junction Temperature

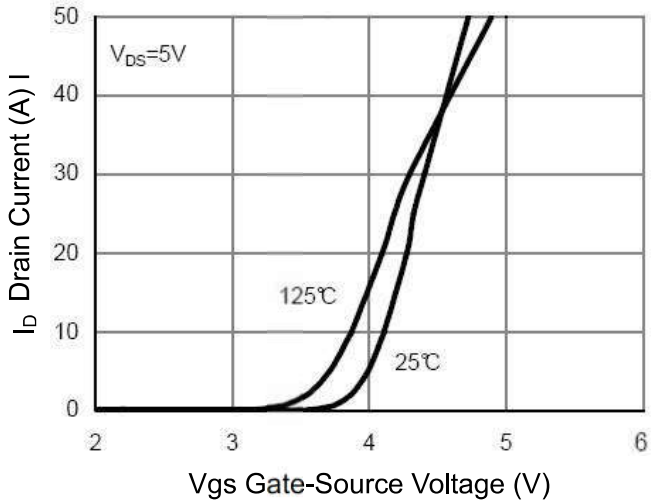


Figure 2 Transfer Characteristics

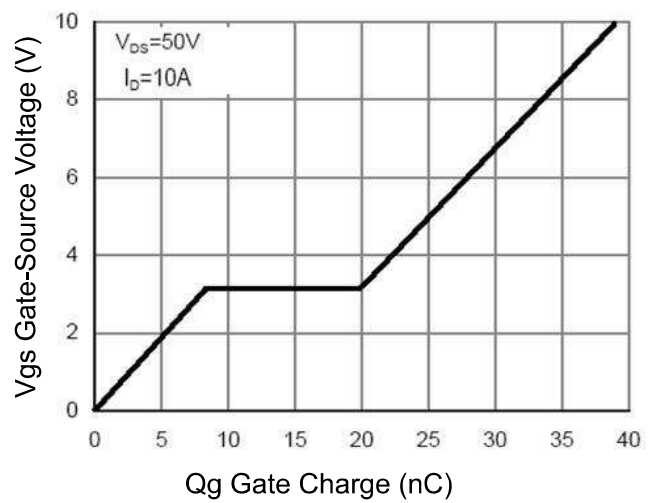


Figure 5 Gate Charge

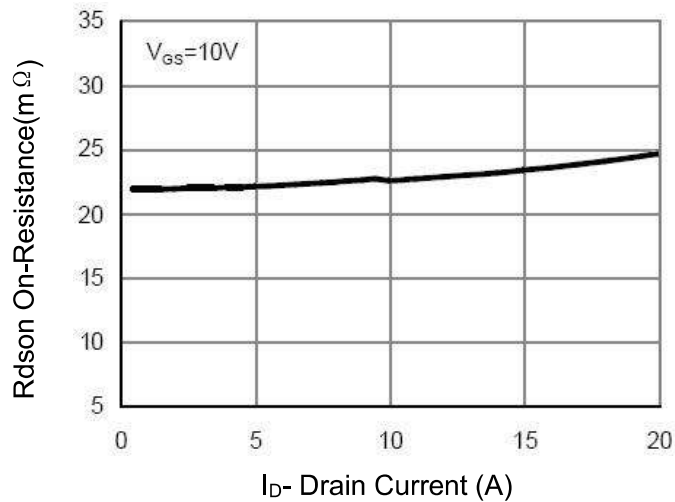


Figure 3 Rdson- Drain Current

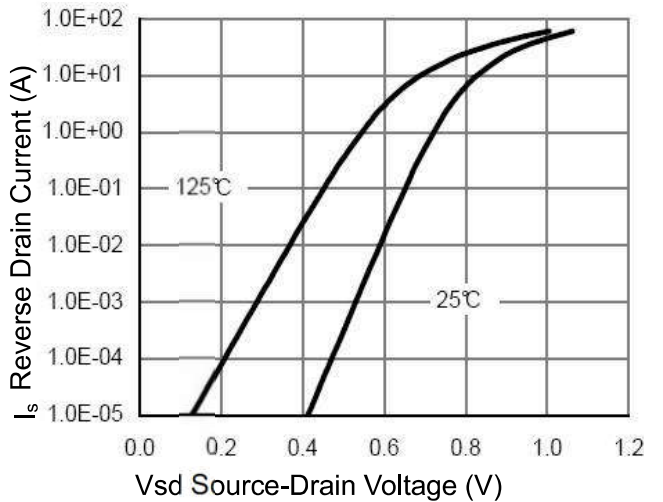


Figure 6 Source- Drain Diode Forward

Ratings and Characteristic Curves

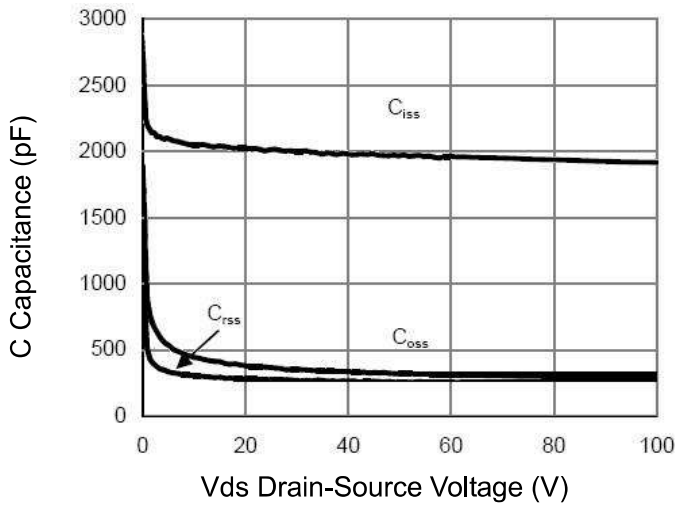


Figure 7 Capacitance vs Vds

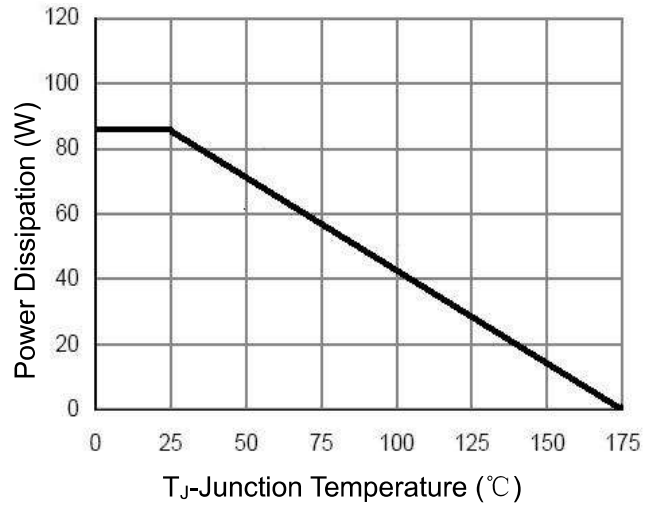


Figure 9 Power De-rating

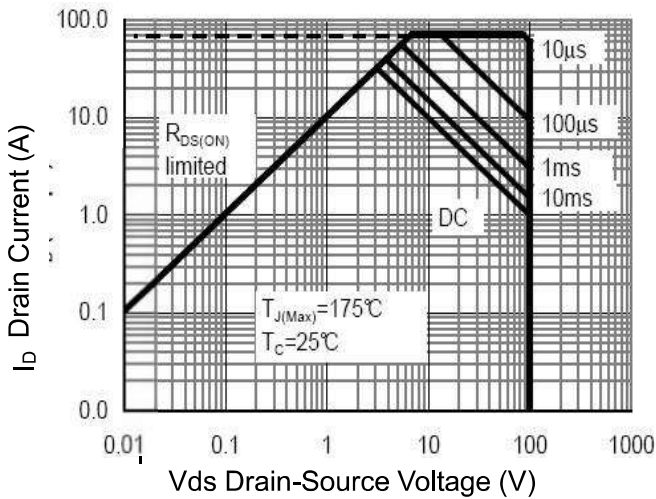


Figure 8 Safe Operation Area

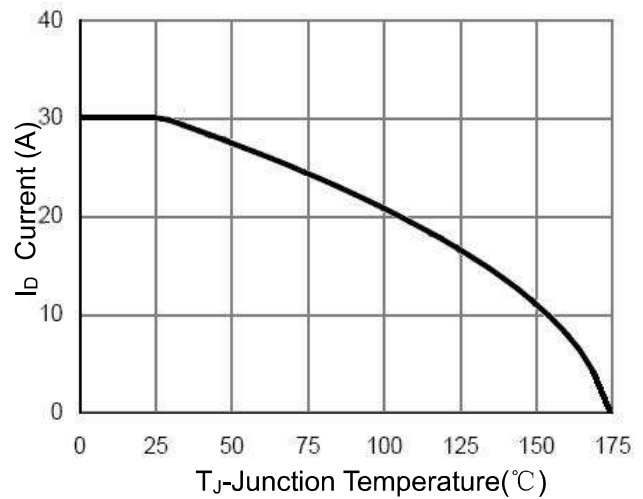


Figure 10 ID Current- Junction Temperature

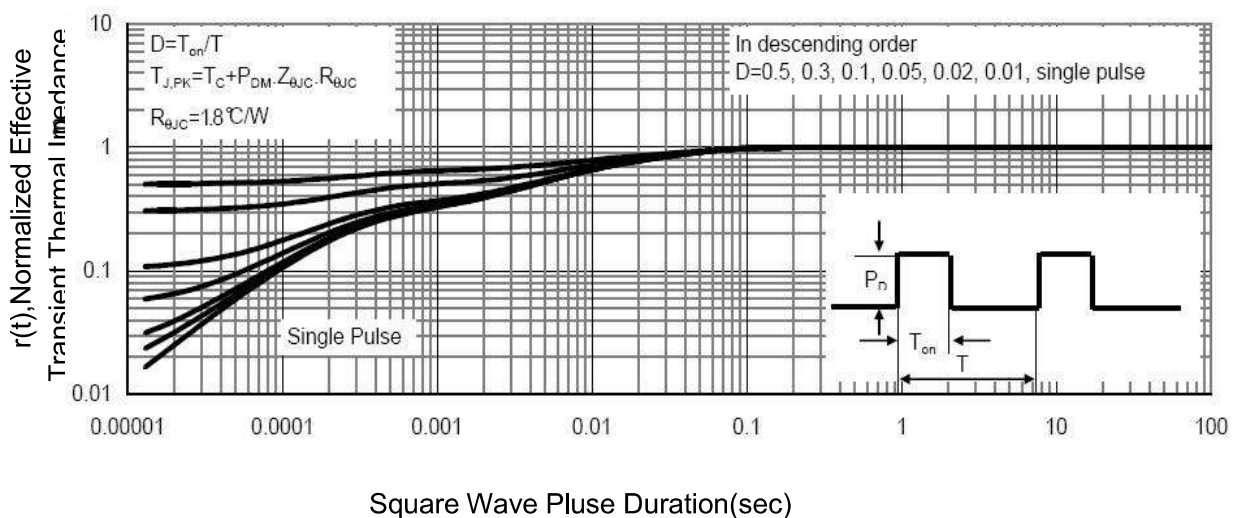


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions Millimeters

TO-252

Dim.	Min.	Typ.	Max.
A	2.10	-	2.50
A2	0	-	0.10
B	0.66	-	0.86
B2	5.18	-	5.48
C	0.40	-	0.60
C2	0.44	-	0.58
D	5.90	-	6.30
D1	5.30REF		
E	6.40	-	6.80
E1	4.63	-	-
G	4.47	-	4.67
H	9.50	-	10.70
L	1.09	-	1.21
L2	1.35	-	1.65
V1	-	7°	-
V2	0°	-	6°
All Dimensions in millimeter			

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[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](#)