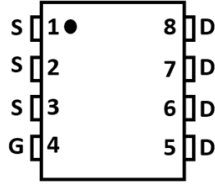
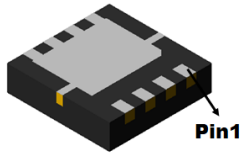
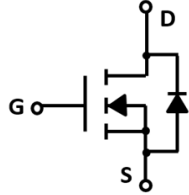


N-Channel Enhancement Mode Field Effect Transistor



DFN3.3X3.3



Product Summary

- V_{DS} 30V
- I_D 50A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <6.0 mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <7.0 mohm

General Description

- Trench Power LV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- High current load applications
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

■ Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	30	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_C=25^\circ\text{C}$	I_D	50	A
	$T_C=100^\circ\text{C}$		35	
Pulsed Drain Current ^A		I_{DM}	190	A
Total Power Dissipation	$T_C=25^\circ\text{C}$	P_D	42	W
	$T_C=100^\circ\text{C}$		21	
Single Pulse Avalanche Energy ^B		E_{AS}	225	mJ
Thermal Resistance Junction-to-Case ^C		$R_{\theta JC}$	3.6	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+175	$^\circ\text{C}$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJQ50N03A	F1	Q50N03	5000	10000	100000	13" reel



YJQ50N03A

■ Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	1.0	1.5	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D =15A		4.9	6.0	mΩ
		V _{GS} = 4.5V, I _D =15A		5.9	7.0	
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V			1.2	V
Maximum Body-Diode Continuous Current	I _S				50	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHZ		2504		pF
Output Capacitance	C _{oss}			323		
Reverse Transfer Capacitance	C _{rss}			283		
Gate resistance	R _g	F= 1MHZ			3	Ω
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =15V, I _D =20A		54		nC
Gate-Source Charge	Q _{gs}			26		
Gate-Drain Charge	Q _{gd}			8.5		
Reverse Recovery Charge	Q _{rr}	I _r =15A, di/dt=100A/us		10.2		ns
Reverse Recovery Time	t _{rr}			15		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DD} =20V, I _D =2A R _{GEN} =3Ω		11		ns
Turn-on Rise Time	t _r			20		
Turn-off Delay Time	t _{D(off)}			41		
Turn-off fall Time	t _f			25		

A. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

B. R_{θJA} is the sum of the junction-to-Case and Case-to-ambient thermal resistance, where the Case thermal reference is defined as the solder mounting surface of the drain pins. R_{θJC} is guaranteed by design, while R_{θJA} is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.



■ Typical Performance Characteristics

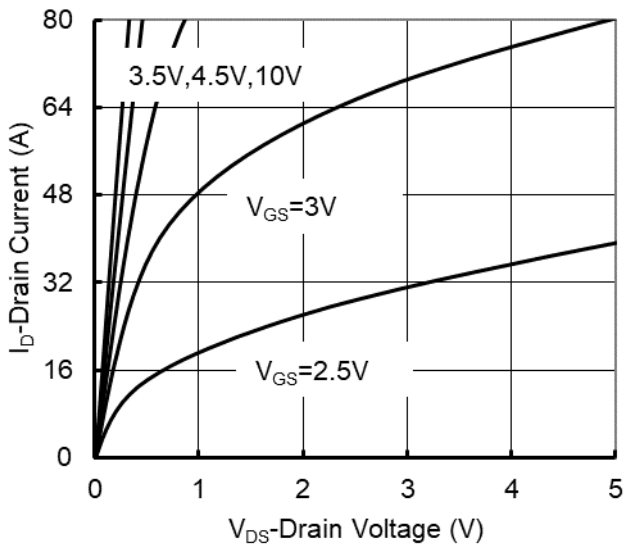


Figure1. Output Characteristics

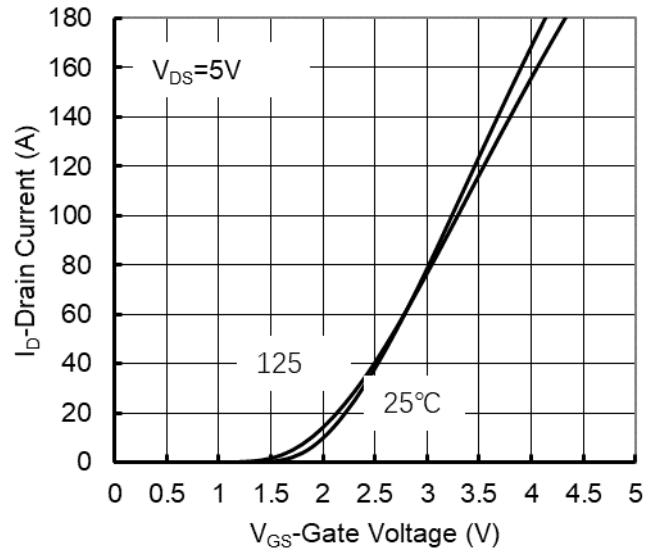


Figure2. Transfer Characteristics

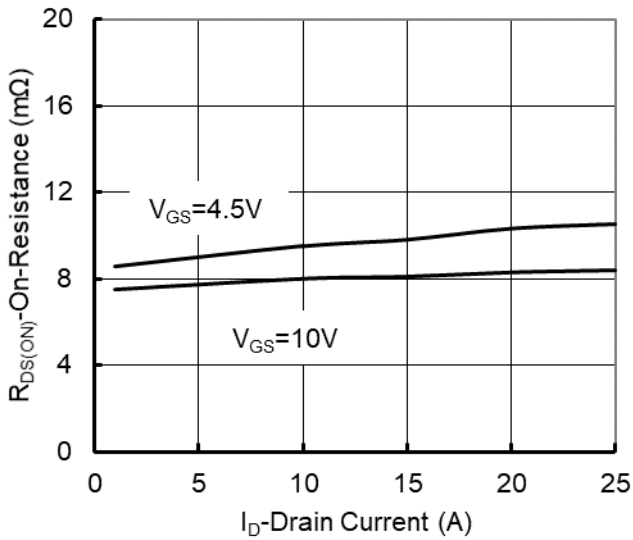


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

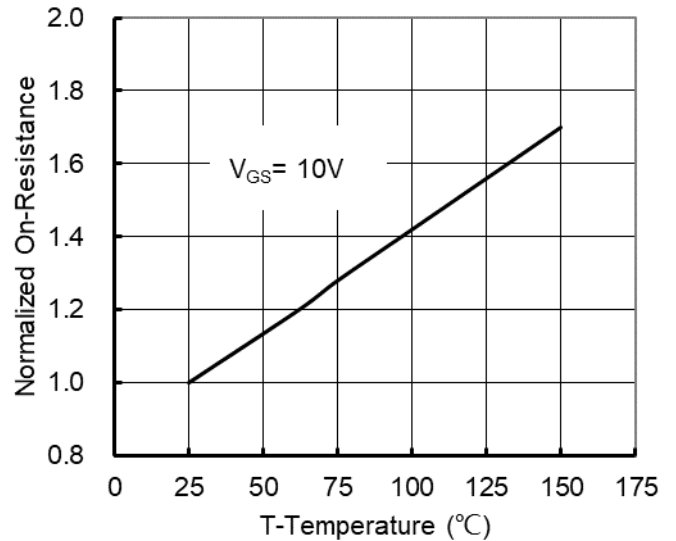


Figure 4: On-Resistance vs. Junction Temperature

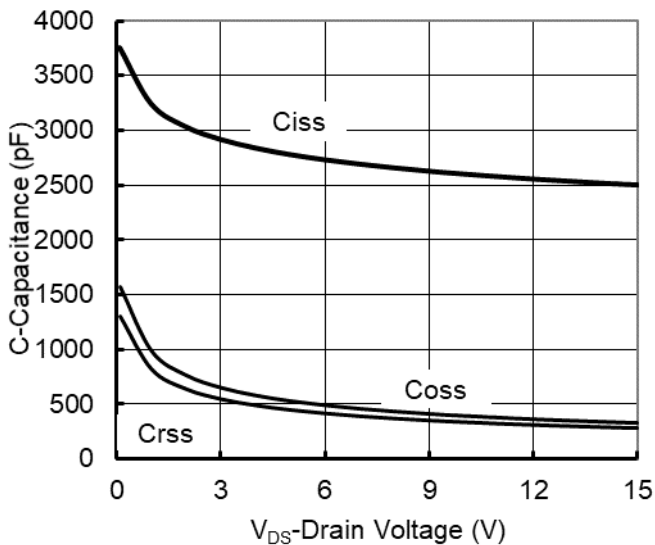


Figure5. Capacitance Characteristics

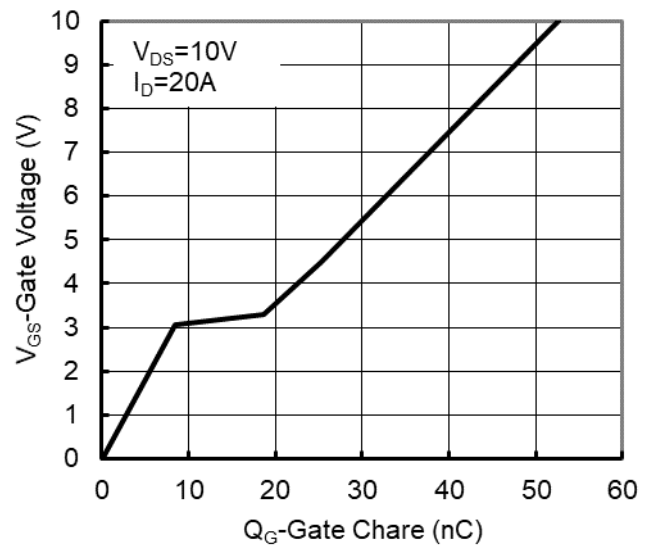


Figure6. Gate Charge



YJQ50N03A

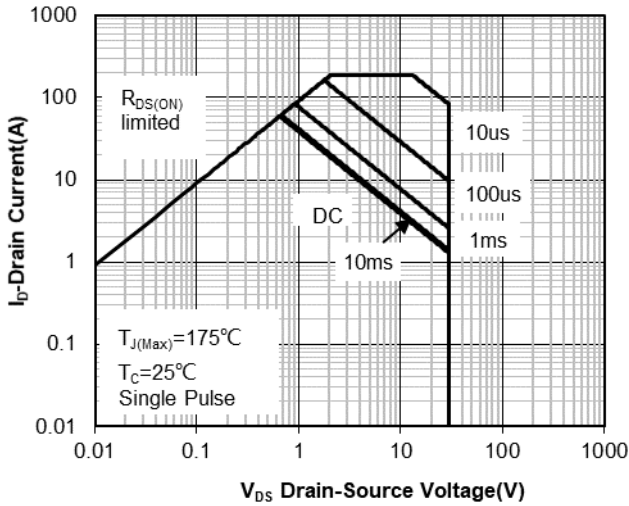


Figure7. Safe Operation Area

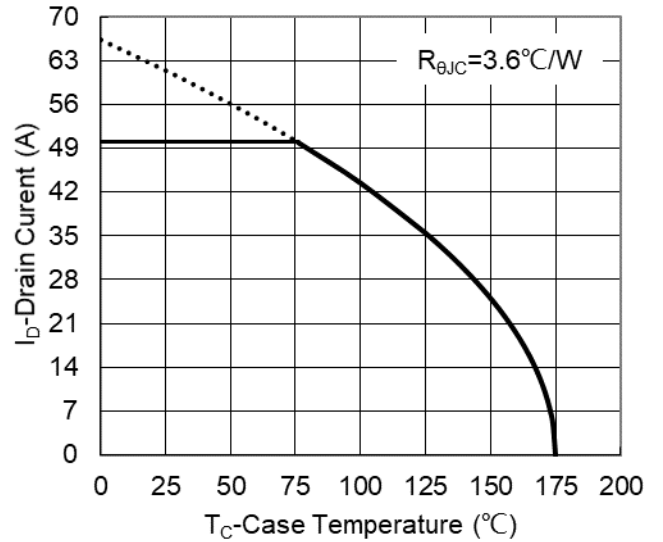


Figure8. Maximum Continuous Drain Current vs Case Temperature

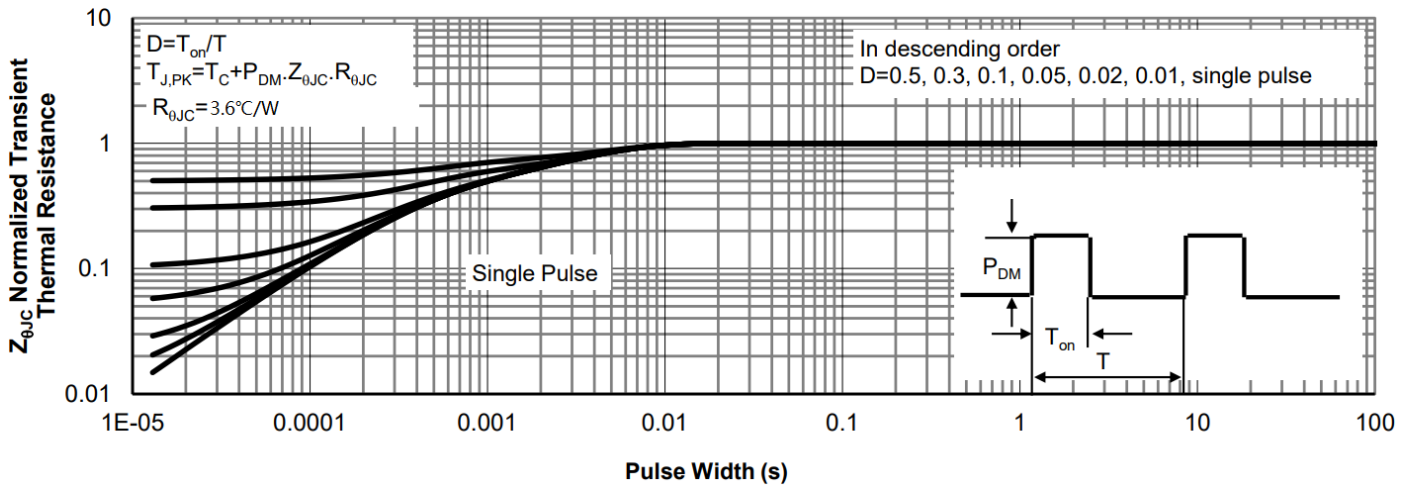
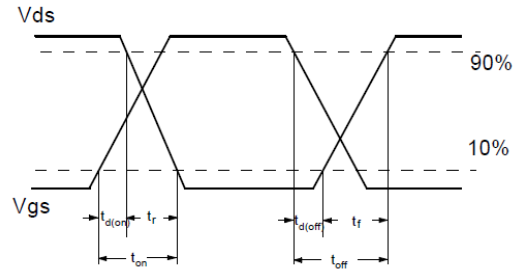
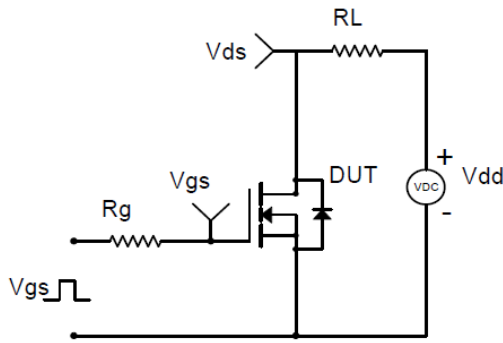
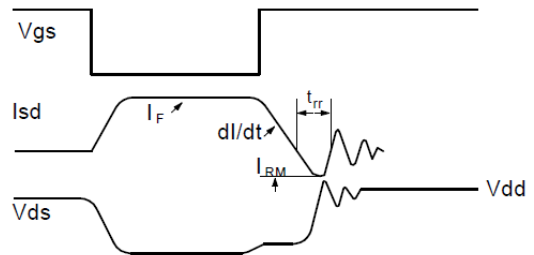
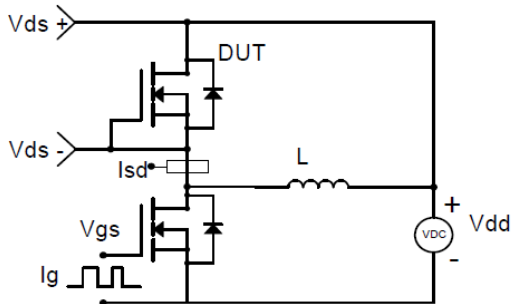


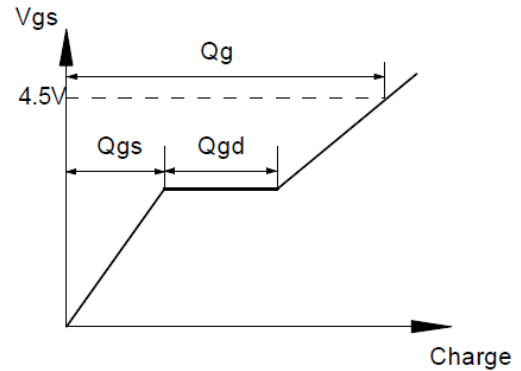
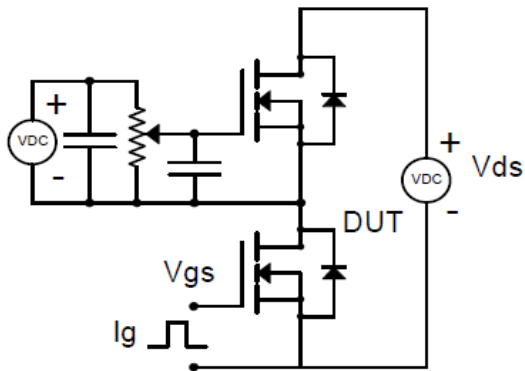
Figure9.Normalized Maximum Transient Thermal Impedance



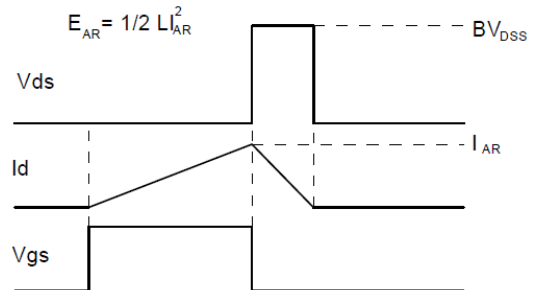
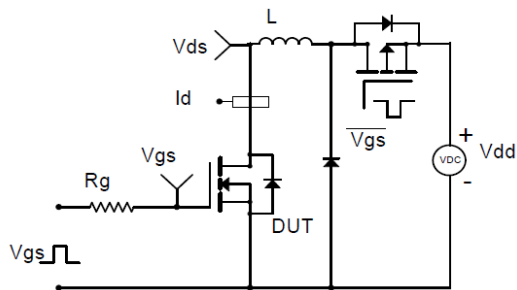
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Gate Charge Test Circuit & Waveform

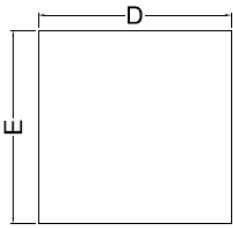


Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

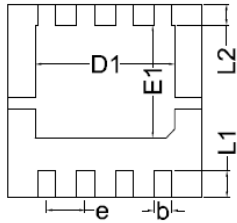


YJQ50N03A

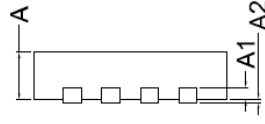
DFN3.3X3.3 Package information



Top View
正面视图

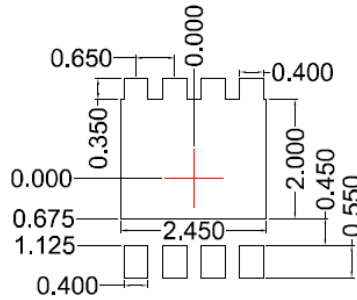


Bottom View
背面视图



Side View
侧面视图

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	3.15	3.25	3.35
E	3.15	3.25	3.35
A	0.70	0.80	0.90
A1	0.20 BSC		
A2			0.10
D1	2.20	2.35	2.50
E1	1.80	1.90	2.00
L1	0.35	0.45	0.55
L2	0.35 BSC		
b	0.20	0.30	0.40
e	0.65 BSC		



Suggested Solder Pad Layout
Top View

- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.10 mm.
 3. The pad layout is for reference purposes only.



Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.21yangjie.com](http://www.21yangjie.com) , or consult your nearest Yangjie's sales office for further assistance.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [Yangjie](#) 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](#)