

120/150V系列 N-沟道 JSFET® 提供更多余量及灵活性 120/150V-series JSFET® Offers More Headroom & Flexibility in Applications like Fast Chargers & PoE



120/150V JSFET® SGT MOSFET 在漏源极耐压上提供更多的余量，因而在功率要求日渐增加的应用上更具灵活性。在 AC/DC 电源适配器和快充充电器里的同步整流、mini/LED 背光里的 DC/DC 升压等应用中，高 V_{DS_Max} 能有效的保证器件在更大的杂散尖峰电压下仍然可靠运行，并且适应不同的系统要求。

The 120/150V-series JSFET® offers more headroom in V_{DS_Max} hence they easily accommodate the increasing demand for higher power in the end systems. In applications like synchronized rectification & DC/DC boost in AC/DC power adapter & mini/LED backlighting, the higher V_{DS_Max} enable reliable operation against larger spurious spikes and be adaptive to different system implementation.

在栅极电荷 (5.3 ~ 68 nC) 和米勒电容 (3.8 ~ 8.3 pF) 不受影响的情况下，单元间距和导通电阻 (5.2 ~ 54 mΩ) 等关键参数被极大的优化。突出的成本性能比，结合低断面的表面贴片式封装 PDFN3x3 / 5x6，该系列产品在 AC/DC 电源适配器、mini/LED 背光、光伏微型逆变器等终端市场广受欢迎。

Key parameters like cell-pitch, turn-ON resistance (5.2 ~ 54 mΩ) are optimized without the gate charge (5.3 ~ 68 nC) & miller capacitance (3.8 ~ 8.3 pF) being compromised. Together with the low-profile SM packages like PDFN3x3 / 5x6, the exceptional cost-vs-performance resulted make these devices well received in the target markets.

为使硅晶的优异能效完全展现，采用了一系列具高热能效及优秀工业设计的封装。其中包括直插式封装 (TO220 / 251) 及表面贴片式封装 (PDFN3x3 / 5x6、TO252 / 263、SOP8)。所有 120/150V SGT MOSFETs 无卤素，且符合 RoHS 标准。

Wide range of thermally efficient packages with excellent industrial design are offered. These include the surface-mounted (SM) type PDFN3x3 / 5x6, TO252 / 263, SOP-8; and the through-hole (TH) type TO220. All devices shipped are halogen-free & RoHS-compliant.

Key Aspects of 120/150V-series JSFET®

■ Small $R_{ON,sp}$ Leading to Very Competitive FOM

Exceptional $R_{ON,sp}$ result in very competitive figure-of-merit (FOM) at 196 for the 120V device and at 276 for the 150V device, all achieved in the innovative PDFN5x6 package.

■ Low Q_g & $V_{GS(th)}$ Reduce Switching Loss

With $V_{GS(th),Typ}$ at ~3V and $Q_{g,Typ}$ as low as 5.3nC, these 120V & 150V devices offer outstanding switching efficiency – key to applications like mini/LED backlighting in LCM & SR in AC/DC.

■ Unclamped Inductive Switching Tested

Fully UIS tested during production to confirm the device's ability to withstand the avalanche energy common in both the resistive and inductive type of loads.

■ Thermally Efficient & Diverse Packages

SM type packages like the PDFN3x3 / 5x6 and TO252 / 263, TH type packages like the TO220 are tuned to minimize thermal resistance and stray inductance.

Market Applications

- DC/DC boost for mini/LED backlighting in of PC monitors and 4K/8K large screen TVs
直流升压 mini/LED 背光: 电竞显示器、4K/8K QD/LCD 平面电视
- Synchronous rectification (SR) in fast chargers & power adapters for PSE (power sourcing equipment) of PoE++
AC/DC 副边同步 MOSFET (中压) 开关: 快充充电器、PSE (PoE++) 电源适配器
- DC/DC in micro-inverter or LV power optimizer for solar energy
微型逆变器/功率优化器 直流电源管理: 光伏再生能源
- Half-bridge inverter for motor driving in power tools, commercial unmanned ariel vehicles (UAV), e-bike
半桥逆变器: 电动工具、商用无人机、电动车
- Power switching for isolated DC/DC conversion in 4G/5G telecommunications, Industry 4.0 automation, battery management system (BMS) of e-bike
隔离 DC/DC 电源切换: 4G/5G 通信设备、工业 4.0 自动化、电动车 BMS

Application Circuits

These 120/150V devices are well suited for miniLED backlighting which has become prevalent in the 4K/8K display panels with spectacular contrast ratio and colour accuracy. The low Q_g @ 5.3 nC and C_{iss} @ 306 pF enable hard switching which can minimize switching loss. The low-profile PDFN3x3 package also makes it easy for the large screen 4K/8K FDTV to stay thin while the diagonal length is at 98" or larger. Compared to the more common SR MOSFET at $V_{DS_Max} = 100V$, the 120/150V devices can easily accommodate spurious spikes of higher magnitude existed in the secondary-side of an AC/DC power adapters or SMPS for the PSE in a typical 90W+ PoE++ and the USB Power Delivery 3.1 applications.

Figure 1: DC/DC Boost in mini/LED Backlighting

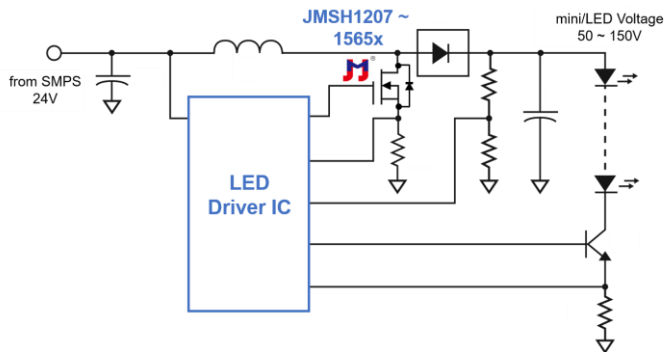
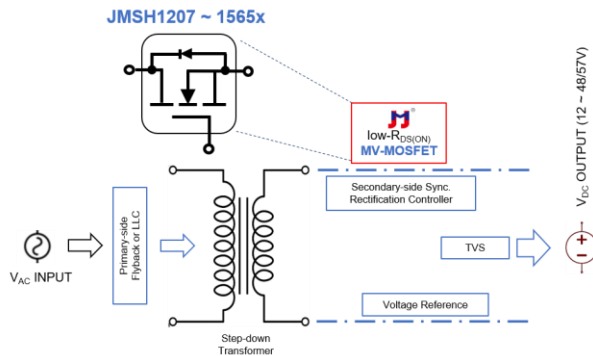


Figure 2: SR Rectification in AC/DC Power Adapter for PSE



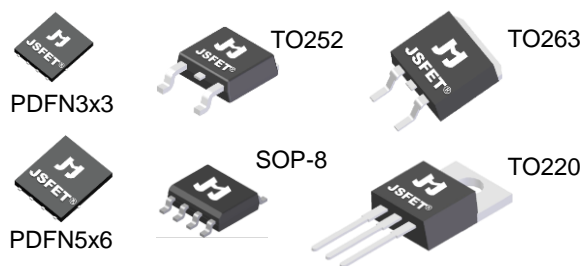
Product Portfolio

Product Name	Package	Configuration	V_{DS_Max} (V)	I_{D_Max} (A)	$R_{DS(ON)_Typ}$ @ $V_{GS}=10V$ (mΩ)	$R_{DS(ON)_Max}$ @ $V_{GS}=10V$ (mΩ)	V_{GS_Max} (V)	$V_{GS(th)_Typ}$ (V)	E_{AS_Max} (mJ)	C_{iss_Typ} (pF)	C_{oss_Typ} (pF)	C_{rss_Typ} (pF)	Q_g_Typ (nC)	FOM
JMSH1207AG	PDFN5x6	N	120	94	5.6	7.0	±20	3.0	135	2,208	424	8.3	35.0	196
JMSH1207AC	TO220-3L	N	120	112	5.9	7.1	±20	2.9	135	2,208	424	8.3	35.0	207
JMSH1207AE	TO263-3L	N	120	112	5.9	7.1	±20	2.9	135	2,208	424	8.3	35.0	207
JMSH1209AC	TO220-3L	N	120	104	6.3	8.2	±20	2.9	135	2,208	424	8.3	35.0	221
JMSH1209AE	TO263-3L	N	120	104	6.3	8.2	±20	2.9	135	2,208	424	8.3	35.0	221
JMSH1507AC	TO220-3L	N	150	115	5.2	6.5	±20	3.0	540	4,320	535	7.2	68.0	354
JMSH1507AE	TO263-3L	N	150	115	5.2	6.5	±20	3.0	540	4,320	535	7.2	68.0	354
JMSH1509AG	PDFN5x6	N	150	75	8.5	9.9	±20	3.0	231	3,609	348	4.8	47.0	400
JMSH1509AC	TO220-3L	N	150	90	9.0	10.9	±20	3.0	211	3,609	348	4.8	47.0	423
JMSH1509AE	TO263-3L	N	150	90	9.0	10.9	±20	3.0	211	3,609	348	4.8	47.0	423
JMSH1511AC	TO220-3L	N	150	78	11.5	13.9	±20	3.0	194	2,890	280	3.9	38.0	437
JMSH1511AE	TO263-3L	N	150	78	11.5	13.9	±20	3.0	194	2,890	280	3.9	38.0	437
JMSH1516AG	PDFN5x6	N	150	51	14.2	16.8	±20	3.2	135	1,603	196	7.5	23.0	327
JMSH1516AC	TO220-3L	N	150	61	14.5	16.9	±20	3.2	135	1,603	196	7.5	23.0	334
JMSH1516AE	TO263-3L	N	150	61	14.5	16.9	±20	3.2	135	1,603	196	7.5	23.0	334
JMSH1552AG	PDFN5x6	N	150	20	43.0	52.0	±20	3.2	13	540	69	4.1	7.6	327
JMSH1552AU	PDFN3x3	N	150	15	45.0	52.0	±20	3.2	13	540	69	4.1	7.6	342
JMSH1552AK	TO252-3L	N	150	20	43.0	52.0	±20	3.2	13	540	69	4.1	7.6	327
JMSH1552AP	SOP-8L	N	150	5	43.0	52.0	±20	3.2	13	540	69	4.1	7.3	314
JMSH1565AGS	PDFN5x6	N	150	18	52.0	65.0	±20	3.2	20	306	70	3.8	5.3	276
JMSH1565AUS	PDFN3x3	N	150	14	54.0	65.0	±20	3.2	20	306	70	3.8	5.3	286
JMSH1565AKS	TO252-3L	N	150	18	52.0	65.0	±20	3.2	16	306	70	3.8	5.3	276
JMSH1565APS	SOP-8L	N	150	4.1	52.0	65.0	±20	3.2	16	306	70	3.8	5.3	276

For more information, please visit <http://www.jjwdz.com>.

Shipping Information

Package	# of Pins	Media	Quantity (pcs)
PDFN3x3	8	13-inch Reel	3,000
PDFN5x6	8	13-inch Reel	3,000
SOP-8	8	13-inch Reel	2,500
TO220	3	Tube	50
TO252	3	13-inch Reel	2,500
TO263	3	13-inch Reel	800



Samples and production quantities of the 120/150V-series JSFET are available from sales_sh@jjwdz.com and authorized sales distributors.