

MAIN CHARACTERISTICS

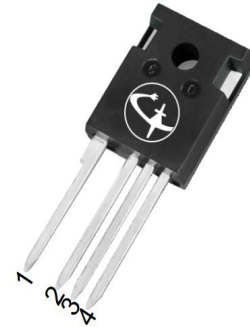
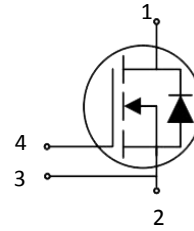
I_D	175A
V_{DS}	1200V
$R_{DS(on)-typ}$ (@ $V_{GS}=18V$ $T_c=25^{\circ}C$)	13m Ω

FEATURES

- High-Speed Switching
- Low switching losses
- High blocking voltage with low on-resistance
- Temperature-Independent Switching Behavior

APPLICATIONS

- PV string inverters
- Solar power optimizer
- Switch mode power supplies
- Online UPS/Industrial UPS
- High Voltage DC/DC Converters



引脚功能

- 1.漏极(D)
- 2.主源极(S)
- 3.开尔文源极(KS)
- 4.栅极(G)

Product specification classification

Part Number	Package	Mode Name	Pack
LSC013M120B4	T0-247-4L	LSC013M120B4	Tube

Maximum Ratings at Tc=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	1200	V
Gate-Source Voltage	V_{GS}	-8/+22	V
Recommended Operation Value	V_{GSop}	-4/+18	V
Continue Drain Current $T_c=25^{\circ}C$	I_D	175	A
Continue Drain Current $T_c=100^{\circ}C$		125	
Pulsed Drain Current	I_{DM}	360	A
Power Dissipation	PD	833	
		416	W
Operating Temperature Range	T_J	-40 to +175	$^{\circ}C$
Storage Temperature Range	T_{STG}	-40 to +175	$^{\circ}C$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.18	$^{\circ}C/W$

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

Electrical Characteristics at Tc=25°C unless otherwise specified

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 100\mu A$	BV_{DSS}	1200	-	-	V
Drain-Source Leakage Current	$V_{DS} = 1200 V, V_{GS} = 0 V$	I_{DSS}	-	1	-	μA
Gate Leakage Current	$V_{GS} = +18 V, V_{DS} = 0 V$	I_{GSS}	-	-	250	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 28 mA$ $T_J = 25^{\circ}C$	$V_{GS(th)}$	2	2.8	4	V
	$V_{DS} = V_{GS}, I_D = 28 mA$ $T_J = 175^{\circ}C$		-	1.9	-	V
Drain-Source On-State Resistance	$V_{GS} = 18V, I_D = 75 A,$ $T_J = 25^{\circ}C$	$R_{DS(ON)}$	-	13	19	$m\Omega$
	$V_{GS} = 18 V, I_D = 75 A,$ $T_J = 175^{\circ}C$		-	23	-	$m\Omega$
Internal Gate Resistance	$f=1MHz$	R_G	-	2.4	-	Ω
Input Capacitance	$V_{DS}=1000V, V_{GS}=0V,$ $T_J=25^{\circ}C, f=100KHz$	C_{iss}	-	6893	-	pF
Output Capacitance		C_{oss}	-	249	-	pF
Reverse Transfer Capacitance		C_{rss}	-	19	-	pF
Total Gate Charge(Note2)		Q_G	-	306	-	nC
Gate to Source Charge(Note2)	$I_D = 75A, V_{DD} = 800V,$ $V_{GS} = -4/+18 V$	Q_{GS}	-	87	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	80	-	nC

Electrical Characteristics at Tc=25°C unless otherwise specified

Turn-on Switching Energy	VDS = 800 V, ID = 75A, VGS = -4/+18 V, RG(ext) = 2.5 Ω L=200μH	Eon	-	1043	-	μJ
Turn-off Switching Energy		Eoff	-	828	-	μJ
Turn-on Delay Time(Note2)		td(ON)	-	25	-	ns
Rise Time(Note2)		tr	-	37	-	ns
Turn-Off Delay Time(Note2)		td(OFF)	-	57	-	ns
Fall Time(Note2)		tf	-	17	-	ns

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

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current	VGS=-4V Tc=25°C	IS	-	150	-	A
	VGS=-4V Tc=175°C		-	82	-	
Maximun Body-Diode Pulsed Current(Note2)		ISM	-	-	316	A
Drain-Source Diode Forward Voltage	VGS = -4 V, ISD = 37.5 A, Tj=25°C	VSD	-	4.6	-	V
	VGS = -4 V, ISD = 37.5 A, Tj=175°C		-	3.9	-	V
Reverse Recovery Time(Note2)	ISD = 100 A, VR = 800 V, dIF / dt = 3000 A/μs	trr	-	15	-	ns
Reverse Recovery Charge(Note2)		Qrr	-	434	-	nC
Peak Reverse Recovery Current		Irrm	-	51	-	A

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

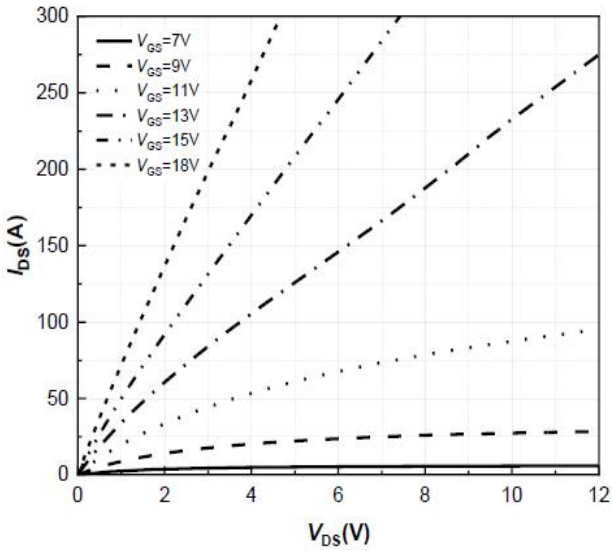


Figure 1. Output Characteristics
 $T_j = -40^{\circ}\text{C}$

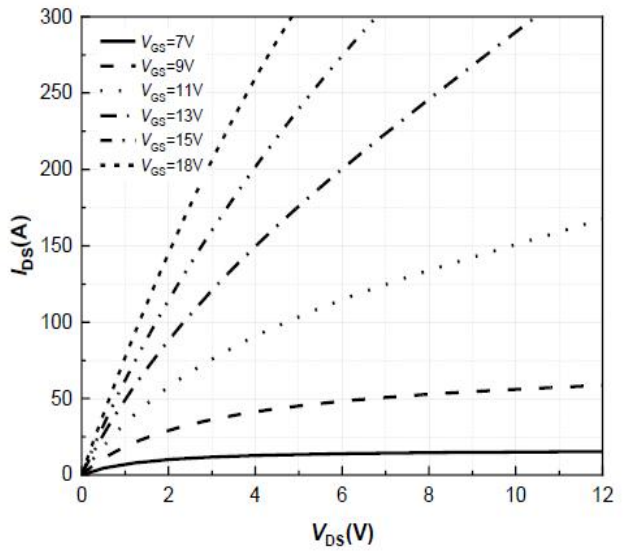


Figure 2. Output Characteristics
 $T_j = 25^{\circ}\text{C}$

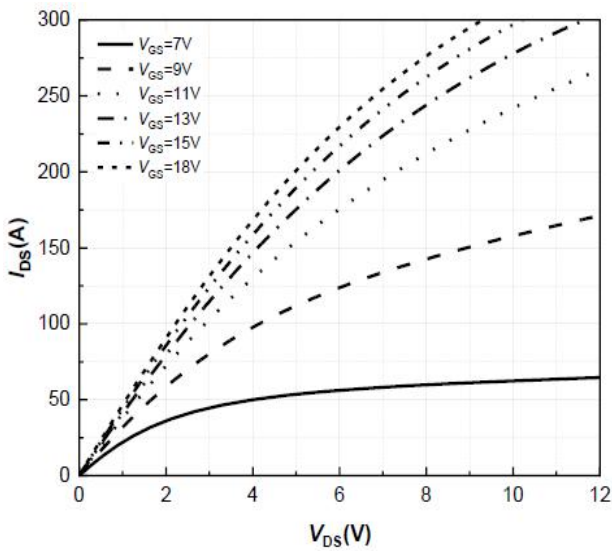


Figure 3. Output Characteristics
 $T_j = 175^{\circ}\text{C}$

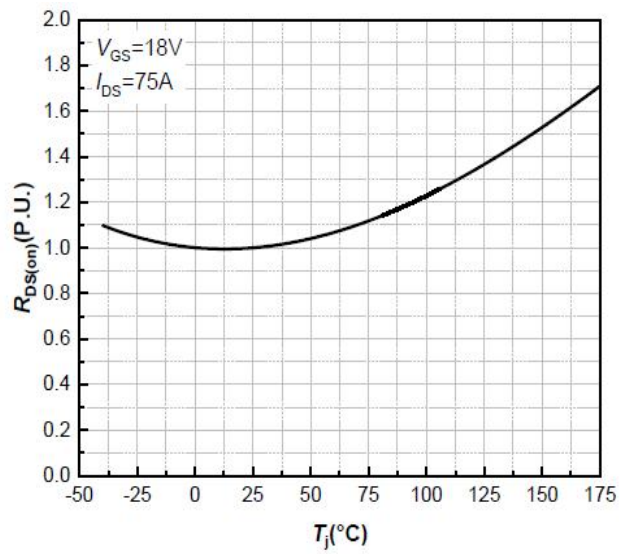


Figure 4. Normalized On-Resistance vs.
Temperature

RATINGS AND CHARACTERISTIC CURVES

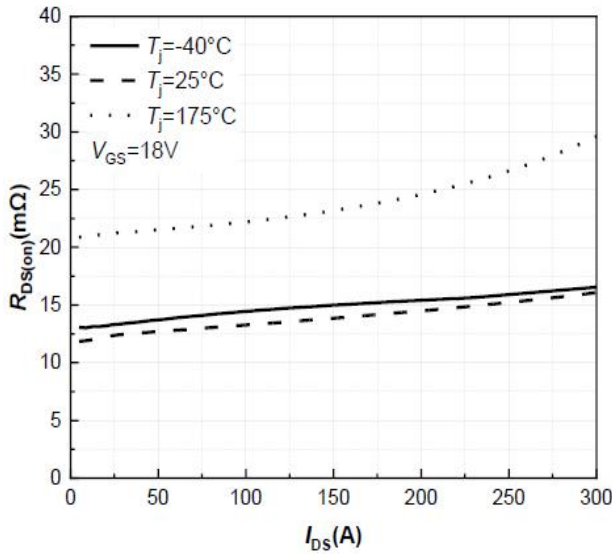


Figure 5. On-Resistance vs. Drain Current For Various Temperatures

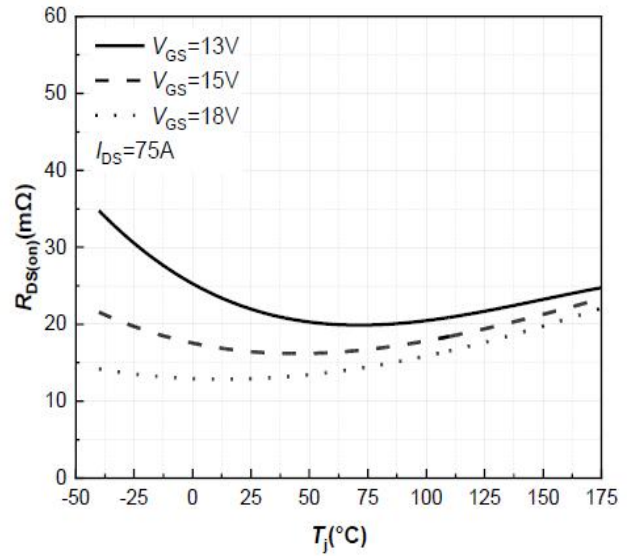


Figure 6. On-Resistance vs. Temperature For Various Gate Voltage

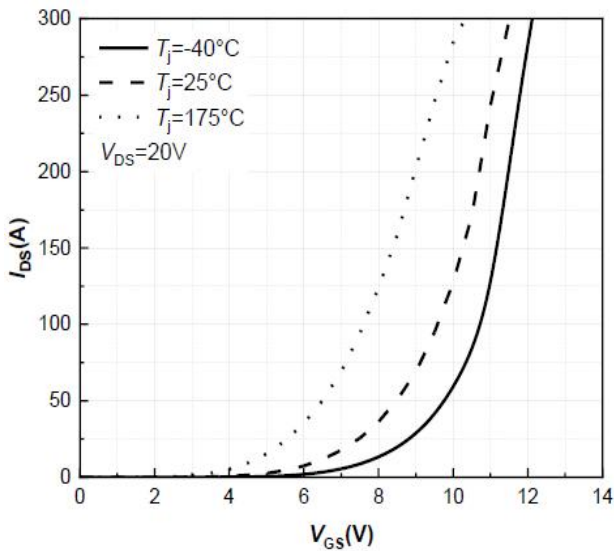


Figure 7. Transfer Characteristic for Various Junction Temperatures

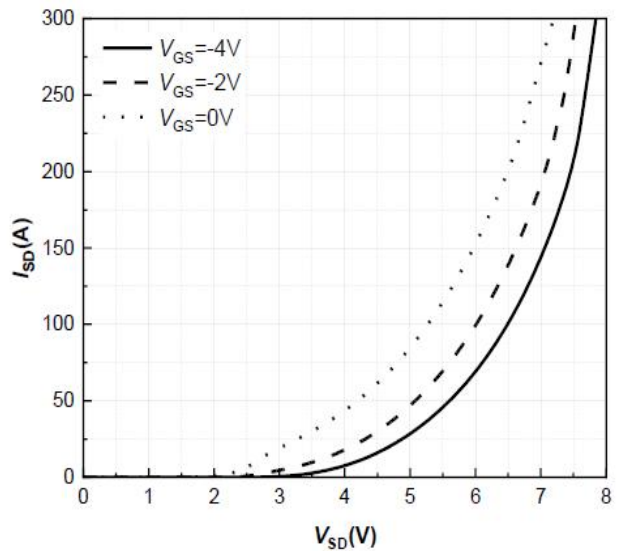


Figure 8. Body Diode Characteristic $T_J = -40^\circ\text{C}$

RATINGS AND CHARACTERISTIC CURVES

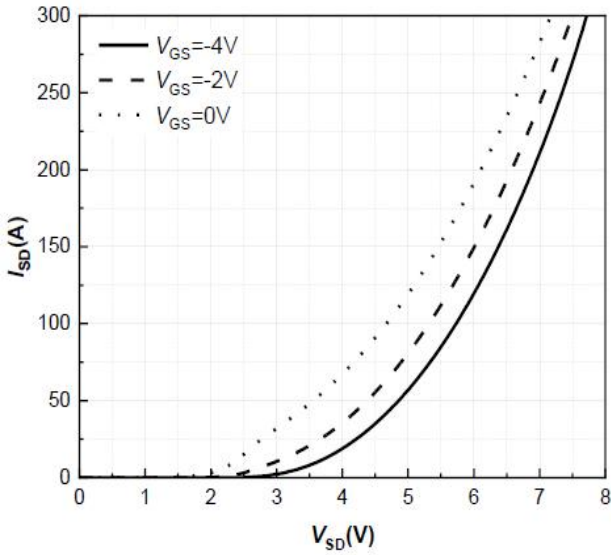


Figure 9. Body Diode Characteristic
 $T_j = 25^\circ\text{C}$

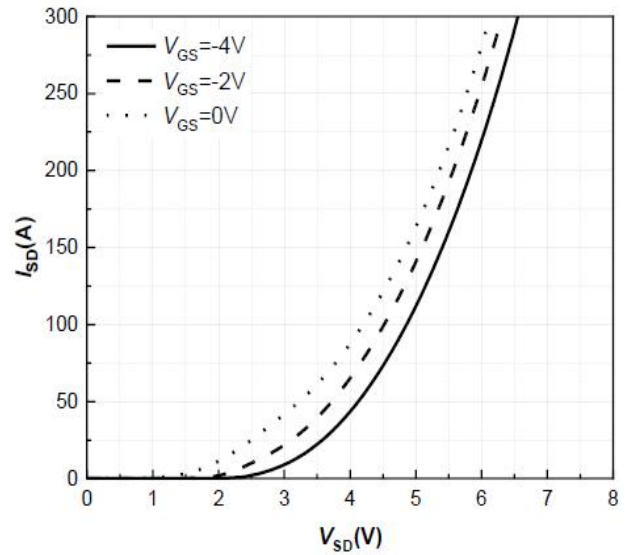


Figure 10. Body Diode Characteristic
 $T_j = 175^\circ\text{C}$

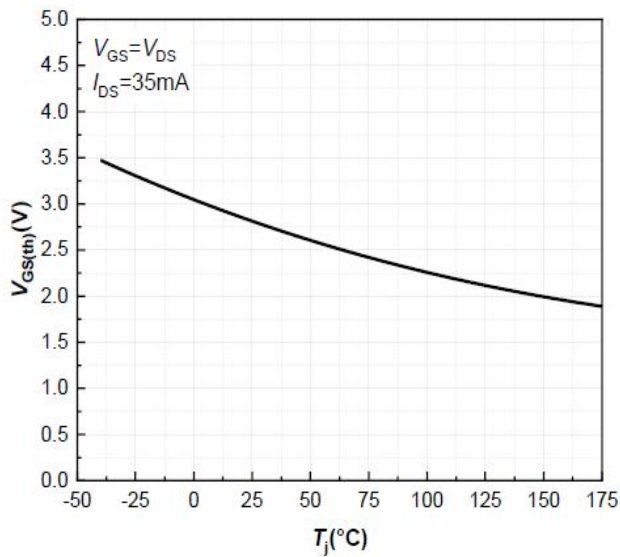


Figure 11. Threshold Voltage vs.
Temperature

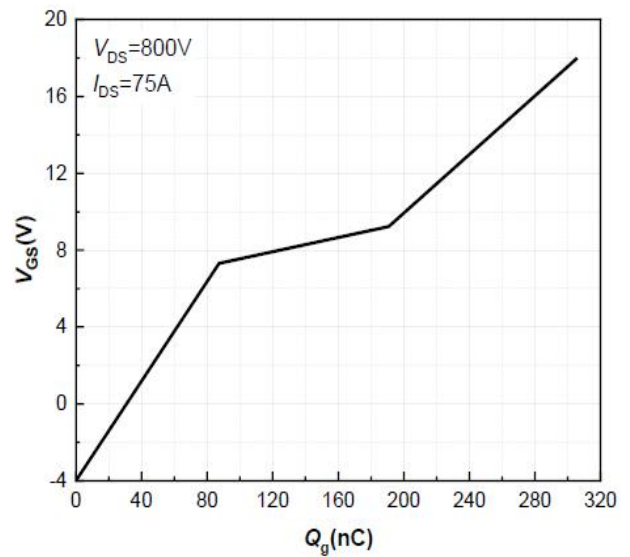


Figure 12. Gate Charge Characteristics

RATINGS AND CHARACTERISTIC CURVES

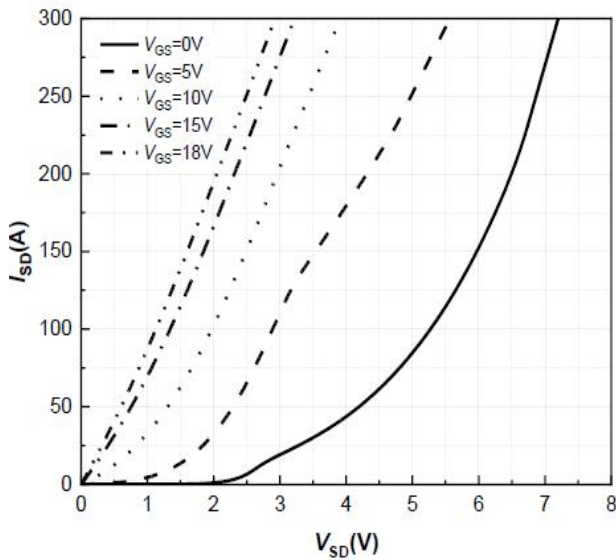


Figure 13. 3rd Quadrant Characteristic
 $T_j = -40^\circ\text{C}$

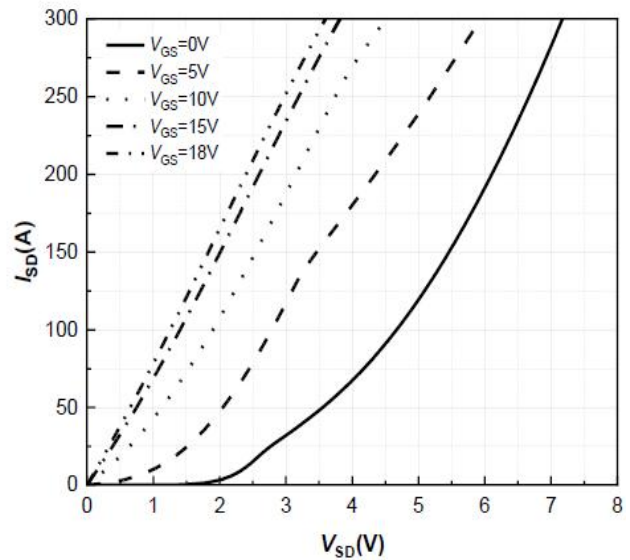


Figure 14. 3rd Quadrant Characteristic
 $T_j = 25^\circ\text{C}$

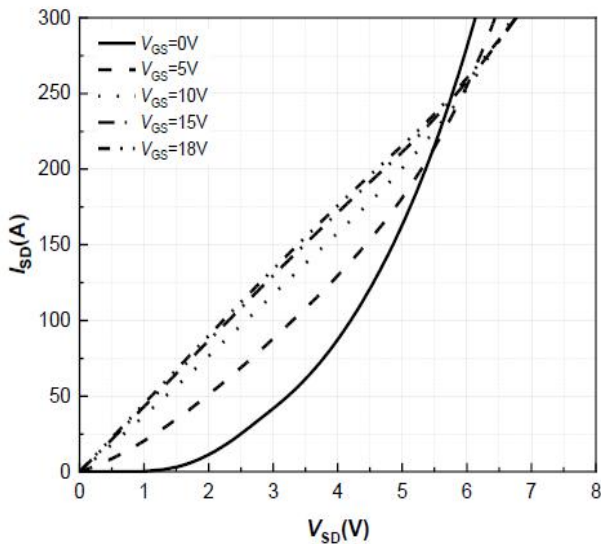


Figure 15. 3rd Quadrant Characteristic
 $T_j = 175^\circ\text{C}$

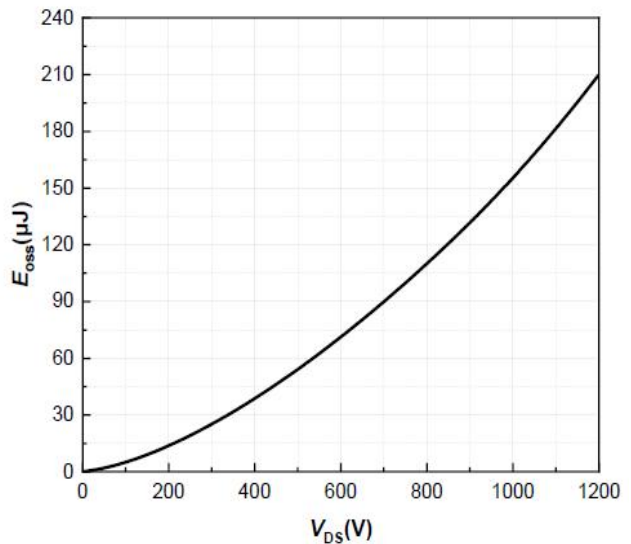


Figure 16. Output Capacitor Stored Energy

RATINGS AND CHARACTERISTIC CURVES

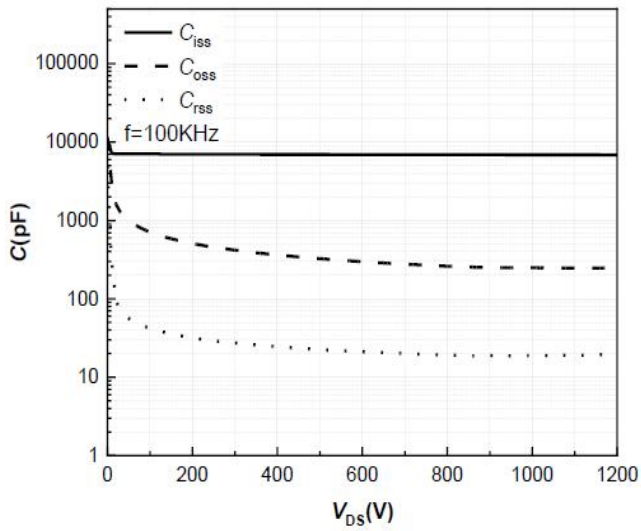


Figure 17. Capacitances vs. Drain-Source

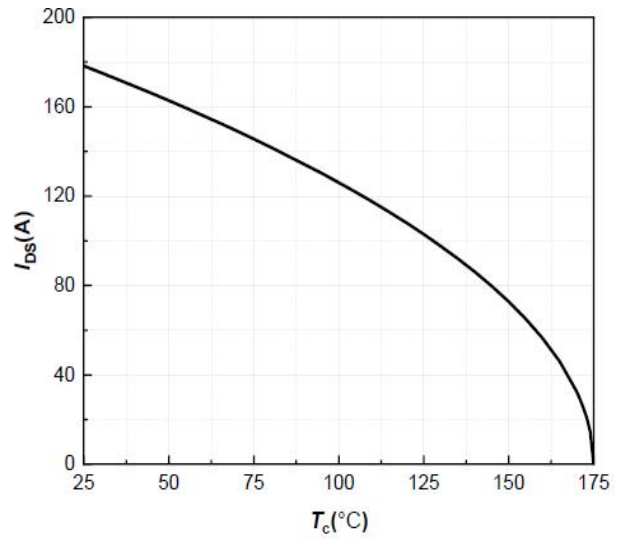


Figure 18. Continuous Drain Current Derating vs. Case Temperature

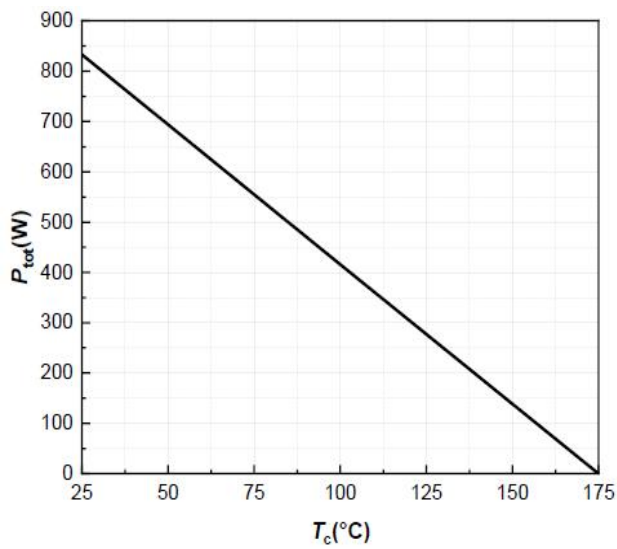


Figure 19. Maximum Power Dissipation Derating vs. Case Temperature

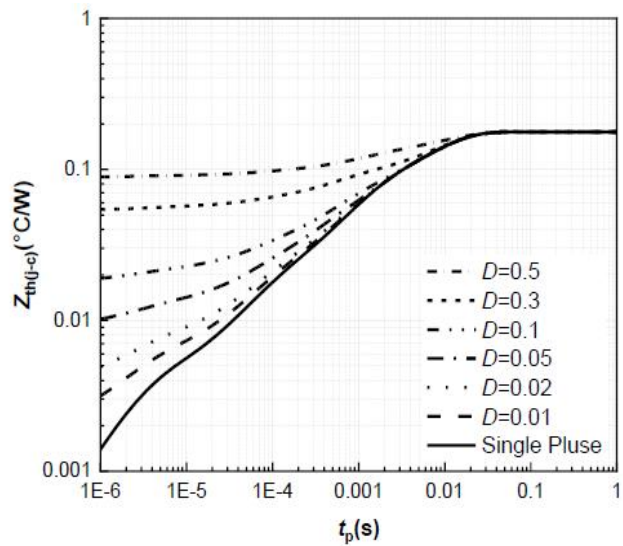


Figure 20. Transient Thermal Impedance

RATINGS AND CHARACTERISTIC CURVES

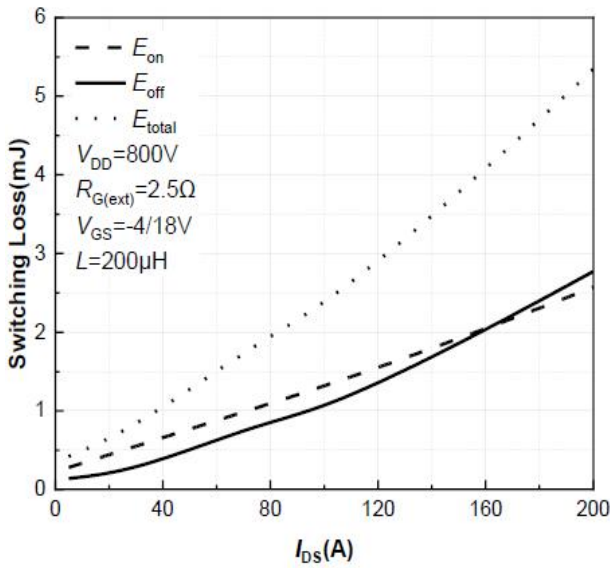


Figure 21. Clamped Inductive Switching Energy vs. Drain Current

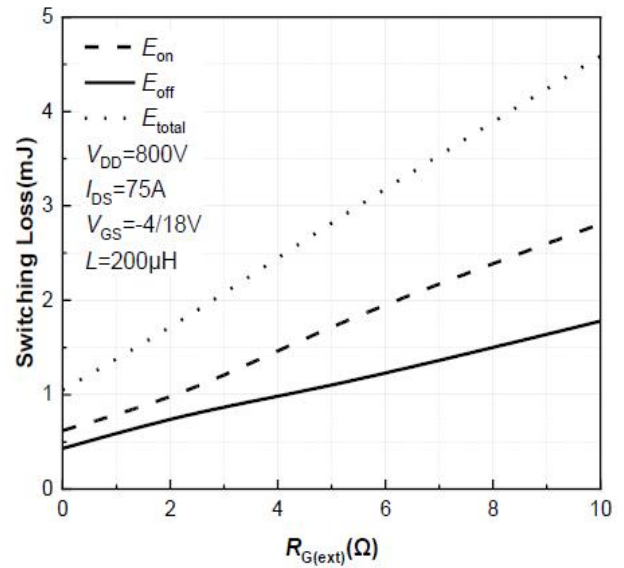


Figure 22. Clamped Inductive Switching Energy vs. R_G

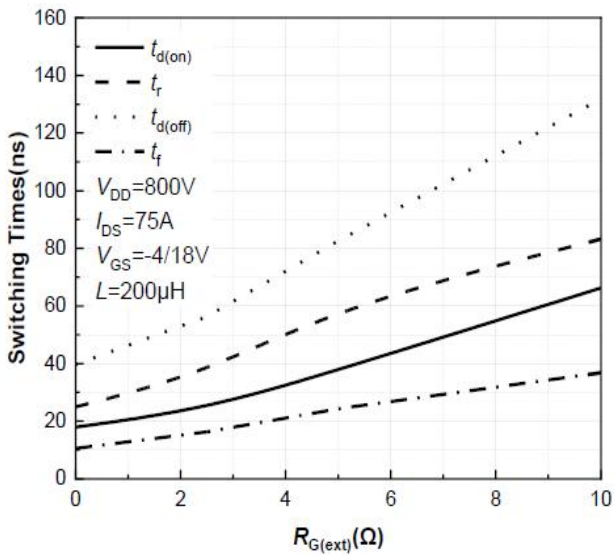


Figure 23. Switching Times vs. R_G

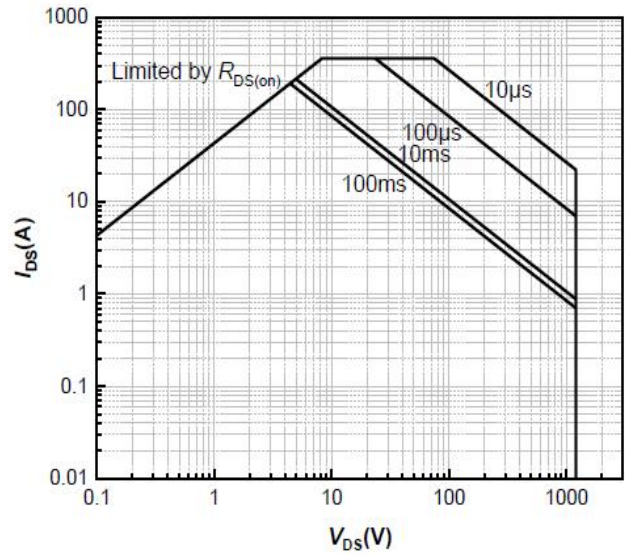
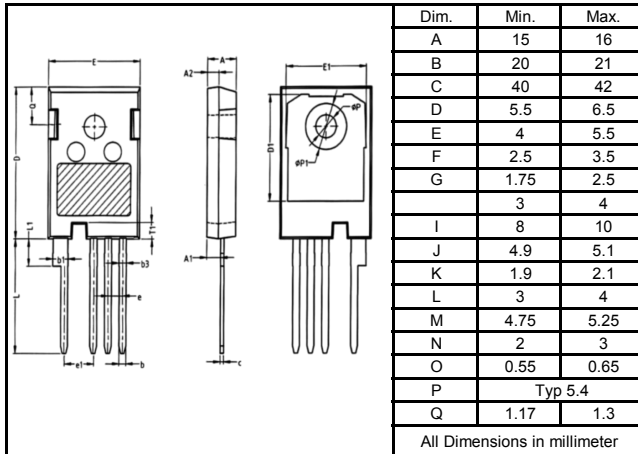


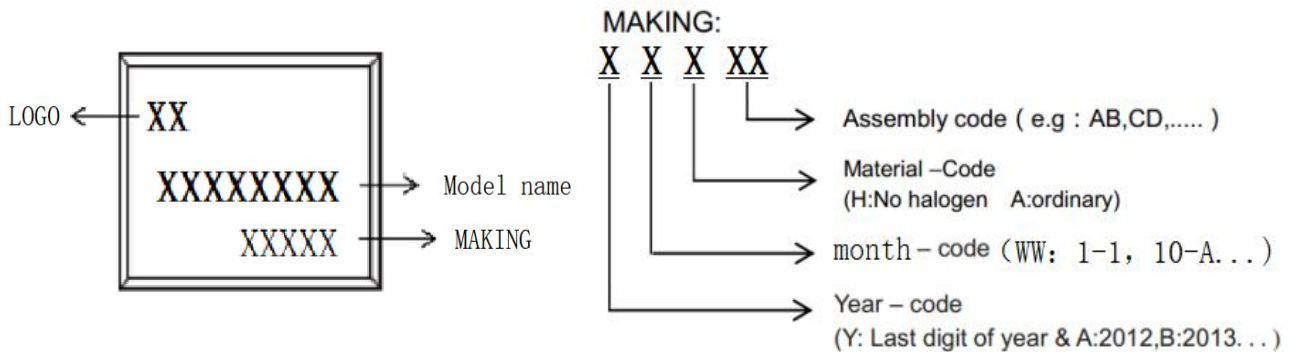
Figure 24. Safe Operating Area

Package Outline Dimensions millimeters

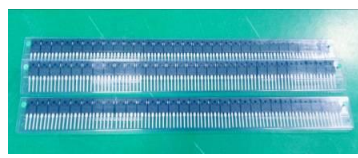
T0-247-4L



Marking on the body



packing instruction

PKG	Minimal Package	Box	Carton
T0-247-4-4L			
	30pcs/pdpe	600pcs/box	3000pcs/box

Notice

All product, product specifications and data are subject to change without notice to improve. The right to explain is owned by LINGXUN electronics company.

Confirm that operation temperature is within the specified range described in the product specification. Avoid applying power exceeding normal rated

power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.

LINGXUN electronics shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

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Revision History

Rev	Changes	Date
2.0	First version	2026/5/26