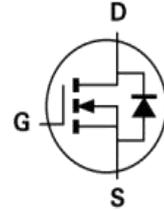


### MAIN CHARACTERISTICS

$I_D$	13A
$V_{DS}$	800V
$R_{DS(on)-typ}$ (@VGS=15V Tc=25°C)	375mΩ



### Features

- High Speed Switching with Low Capacitances
- High Blocking Voltage with Low RDS(on)
- Easy to paralle
- Simple to drive
- RoHS Compliant



TO-252

### Benefits

- Increased Power Density
- Faster Operating Freequency
- Reduction of Heat Sink Requirements
- Higher Efficiency
- Reduced EMI

### Application

- Power Factor Correction Modules
- Switch Mode Power Supplies
- DC-AC Inverters
- High Voltage DC/DC Converters

### Package parameters

Part Number	Package	Mode Name	Pack
LSC380M65D	TO-252	LSC380M65D	Tape

### Maximum Ratings at Tc=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	800	V
Gate-Source Voltage	$V_{GS}$	-8/+22	V
Recommended Operation Value	$V_{GSop}$	-4/+18	V
Continue Drain Current TC=25°C	$I_D$	13	A
Continue Drain Current TC=100°C		9.2	A
Pulsed Drain Current (Note1)	$I_{DM}$	24	A
Power Dissipation	$P_D$	57	W
Operating Temperature Range	$T_J$	-40 to +175	°C
Storage Temperature Range	$T_{STG}$	-40 to +175	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.63	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	30	°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	$V_{GS} = 0 V, I_D = 100\mu A$	$BV_{DSS}$	800	-	-	V
Drain-Source Leakage Current	$V_{DS} = 800 V, V_{GS} = 0 V$	$I_{DSS}$	-	1	-	μA
Gate Leakage Current	$V_{GS} = 18 V, V_{DS} = 0 V$	$I_{GSS}$	-	-	250	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 1.33 mA$	$V_{GS(th)}$	2	3.1	4	V
Drain-Source On-State Resistance	$V_{GS} = 15 V, I_D = 4.5 A$	$R_{DS(on)}$	-	375	500	mΩ
	$V_{GS} = 15 V, I_D = 4.5 A, T_J = 175^\circ C$		-	340	-	
	$V_{GS} = 18 V, I_D = 4.5 A$		-	295	357	
	$V_{GS} = 18 V, I_D = 4.5 A, T_J = 175^\circ C$		-	310	-	
Input Capacitance	$V_{GS} = 0 V, V_{DS} = 600 V, f = 1MHz$	$C_{iss}$	-	203	-	pF
Output Capacitance		$C_{oss}$	-	26	-	pF
Reverse Transfer Capacitance		$C_{rss}$	-	3.5	-	pF
Internal Gate Resistance	$f=1MHz$	$RG(int)$	-	3.6	-	Ω
Total Gate Charge(Note2)	$I_D = 4.5 A, V_{DD} = 400 V, V_{GS} = -4/18 V$	$Q_G$	-	11.2	-	nC
Gate to Source Charge(Note2)		$Q_{GS}$	-	2	-	nC
Gate to Drain Charge(Note2)		$Q_{GD}$	-	5.2	-	nC
Turn-on Delay Time(Note2)	$V_{DS} = 400 V, I_D = 4.5 A, V_{GS} = -4/18 V, RG = 2.5 \Omega$	$t_{d(ON)}$	-	3	-	ns
Rise Time(Note2)		$t_r$	-	8	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	6	-	ns
Fall Time(Note2)		$t_f$	-	11	-	ns
Turn-On Energy		$E_{on}$	-	21	-	μJ
Turn-Off Energy		$E_{off}$	-	5	-	μJ

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

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximum Body-Diode Continuous Current	VGS=-4V Tc=25°C	I <sub>S</sub>	-	13	-	A
	VGS=-4V Tc=100°C		-	6.5	-	A
Maximum Body-Diode Pulsed Current(Note2)		I <sub>SM</sub>	-	-	24	A
Drain-Source Diode Forward Voltage	VGS=-4V, ISD=2.5A Tj=25°C	V <sub>SD</sub>	-	4	-	V
	VGS=-4V, ISD=2.5A Tj=175°C		-	3.6	-	V
	VGS=-4V, ISD=4.5A Tj=25°C	V <sub>SD</sub>	-	4.5	-	V
	VGS=-4V, ISD=4.5A Tj=175°C		-	4	-	V
Reverse Recovery Time(Note2)	VGS=-4V, ISD=4.5A,	trr	-	10	-	ns
Reverse Recovery Charge(Note2)	VR=400V,	Qrr	-	56	-	nC
Peak Reverse Recovery Current	di/dt=1000A/μs	Irrm	-	4	-	A

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

### RATINGS AND CHARACTERISTIC CURVES

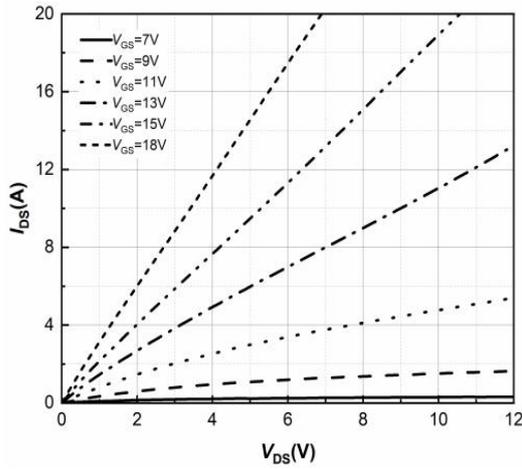


Figure 1. Output Characteristics  
 $T_j = -40^\circ\text{C}$

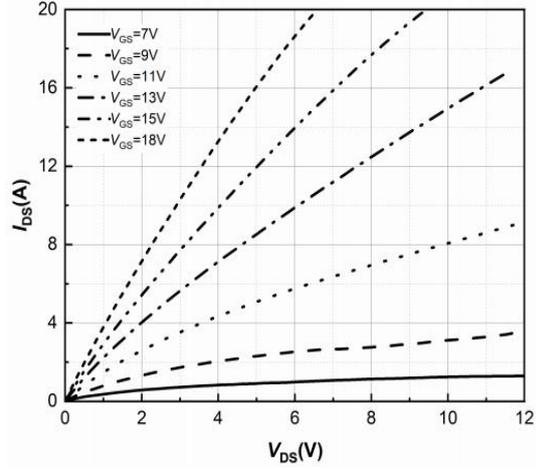


Figure 2 Output Characteristics

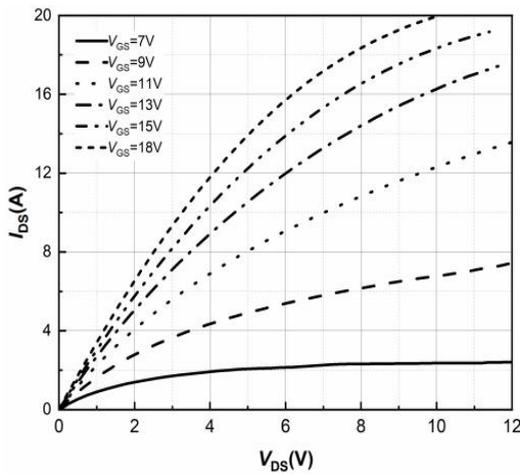


Figure 3. Output Characteristics  
 $T_j = 175^\circ\text{C}$

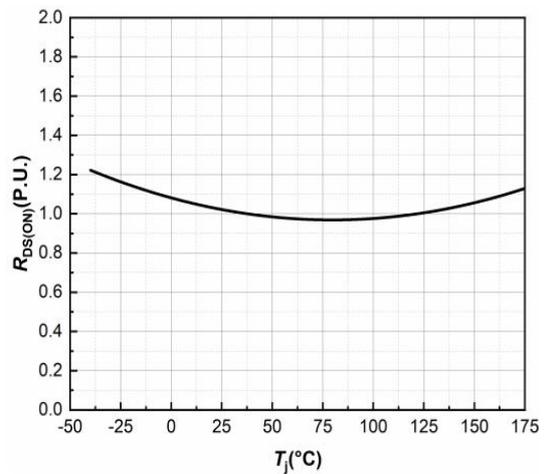


Figure 4. Normalized On-Resistance vs. Temperature

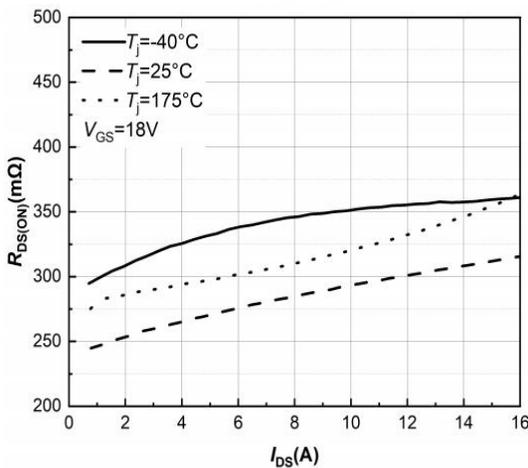


Figure 5. On-Resistance vs. Drain Current For Various Temperatures

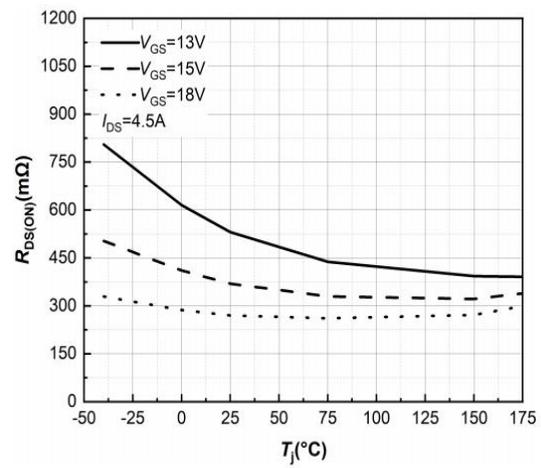


Figure 6. On-Resistance vs. Temperature For Various Gate Voltage

### RATINGS AND CHARACTERISTIC CURVES

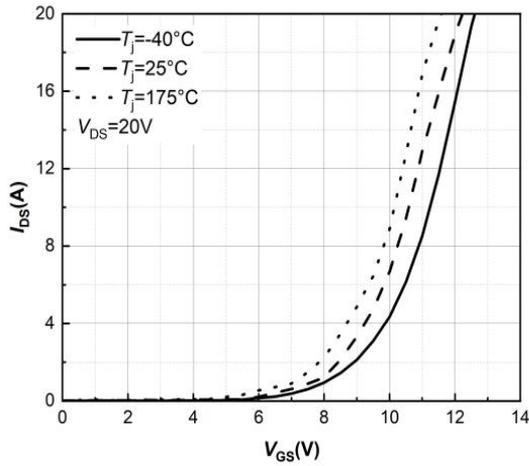


Figure 7. Transfer Characteristic for Various Junction Temperatures

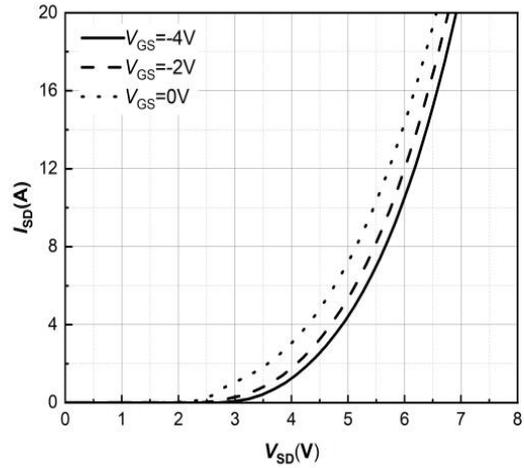


Figure 8. Body Diode Characteristic  $T_J = -40^\circ\text{C}$

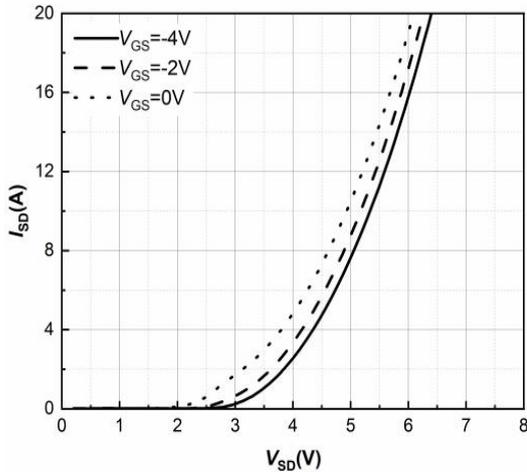


Figure 9. Body Diode Characteristic  $T_J = 25^\circ\text{C}$

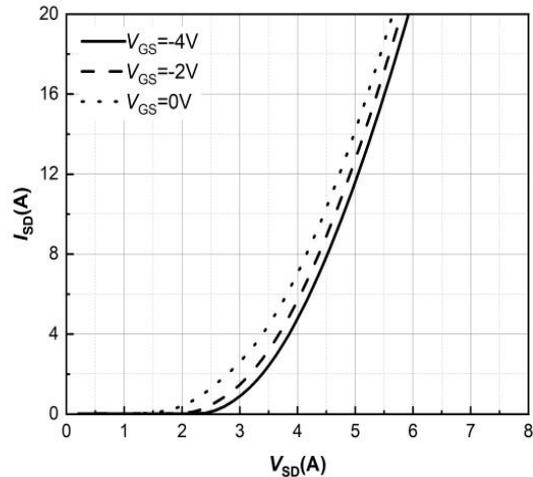


Figure 10. Body Diode Characteristic  $T_J = 175^\circ\text{C}$

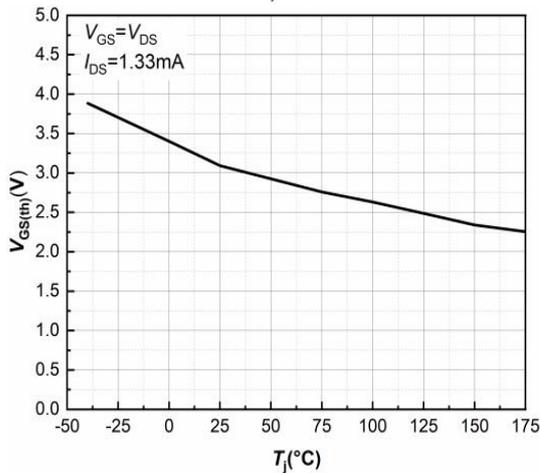


Figure 11. Threshold Voltage vs. Temperature

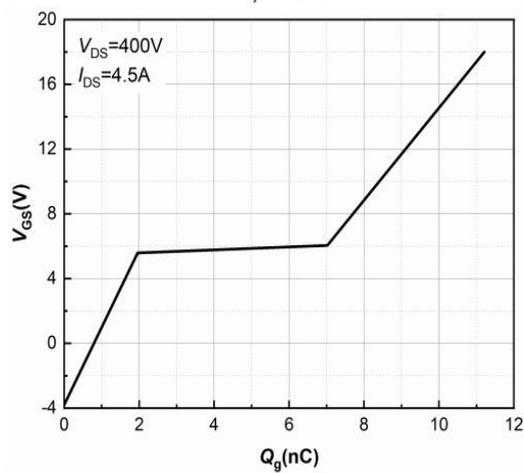


Figure 12. Gate Charge Characteristics

## RATINGS AND CHARACTERISTIC CURVES

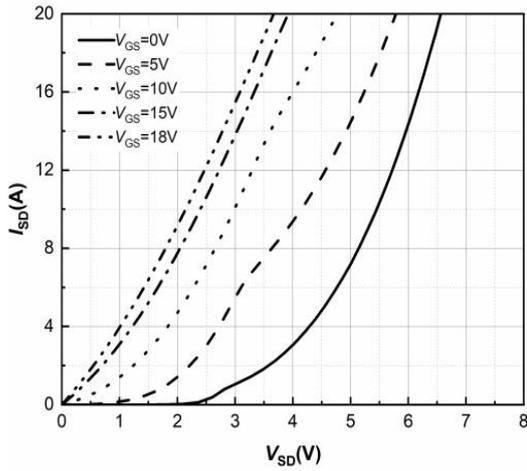


Figure 13. 3rd Quadrant Characteristic  
 $T_j = -40^\circ\text{C}$

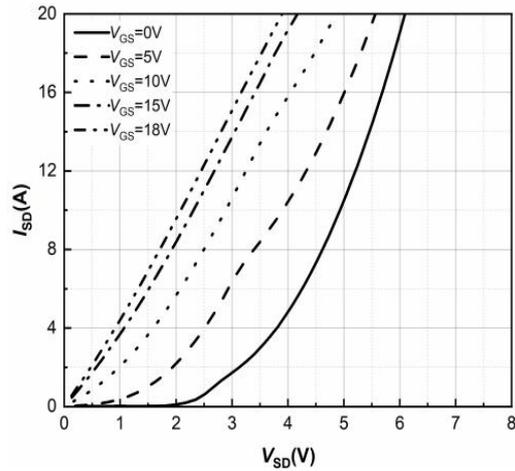


Figure 14. 3rd Quadrant Characteristic  
 $T_j = 25^\circ\text{C}$

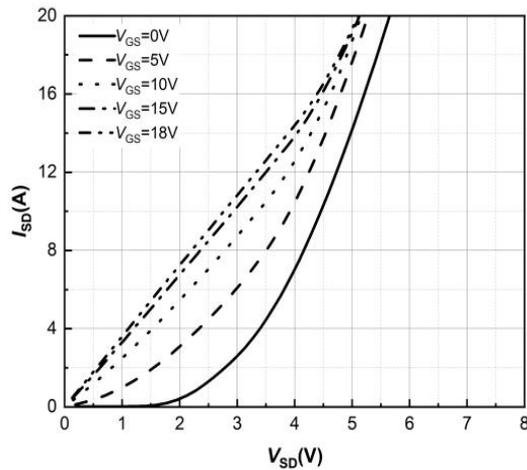


Figure 15. 3rd Quadrant Characteristic  
 $T_j = 175^\circ\text{C}$

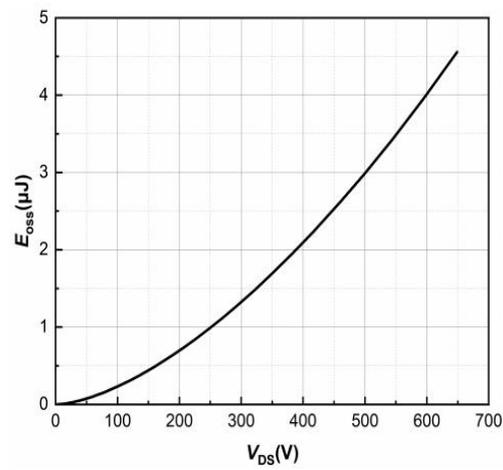


Figure 16. Output Capacitor Stored Energy

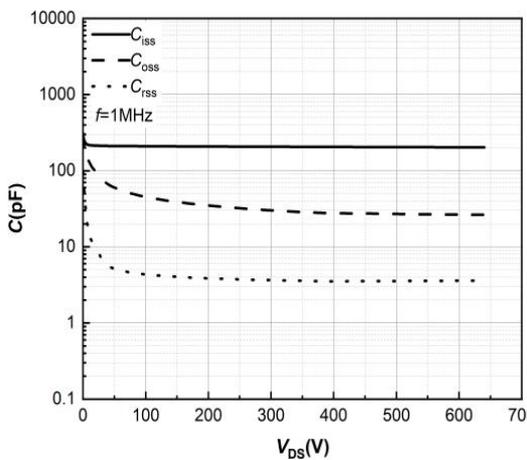


Figure 17. Capacitances vs. Drain-Source

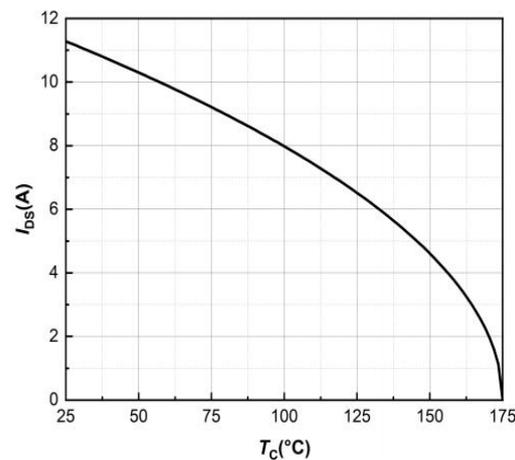


Figure 18. Continuous Drain Current Derating vs. Case Temperature

## RATINGS AND CHARACTERISTIC CURVES

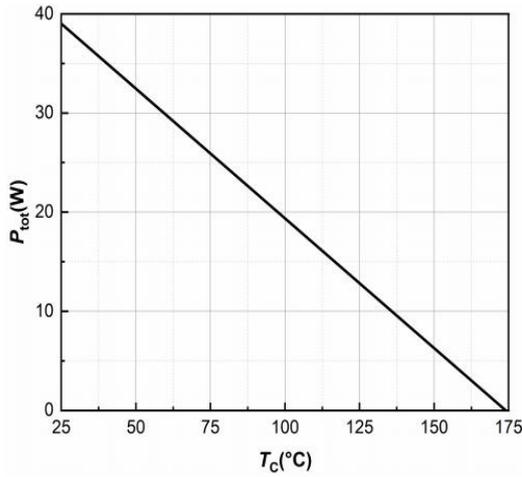


Figure 19. Maximum Power Dissipation Derating vs. Case Temperature

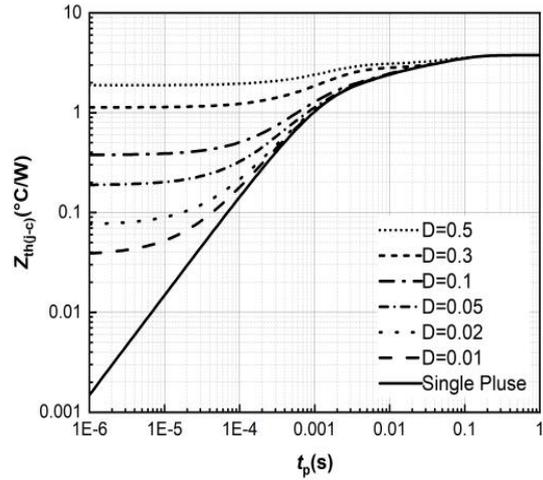


Figure 20. Transient Thermal Impedance

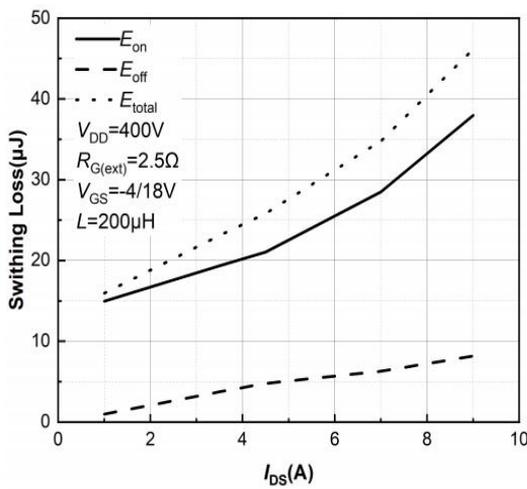


Figure 21. Clamped Inductive Switching Energy vs. Drain Current

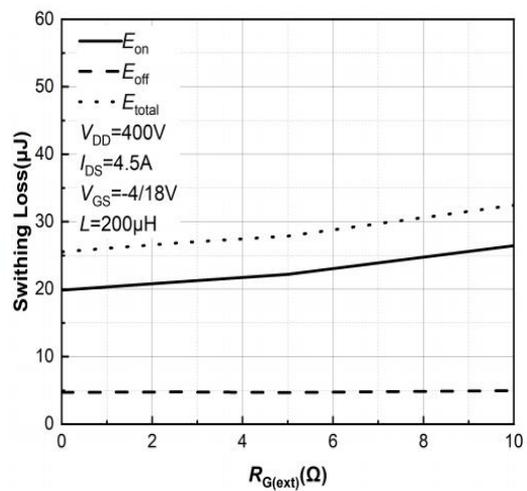


Figure 22. Clamped Inductive Switching Energy vs.  $R_G$

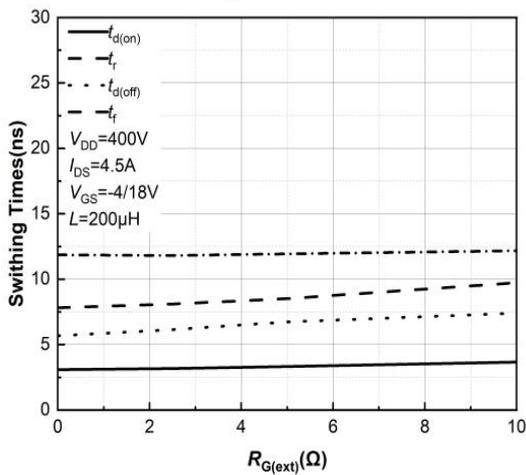


Figure 23. Switching Times vs.  $R_G$

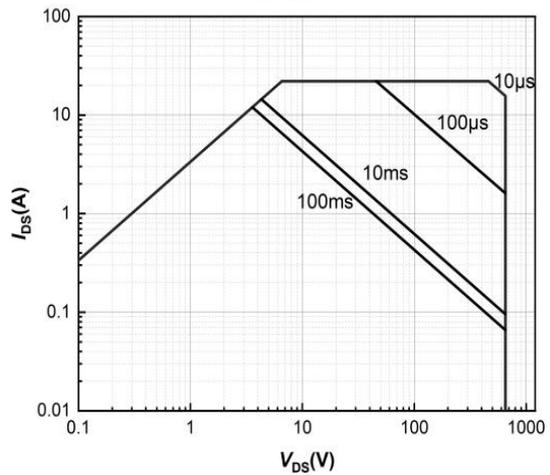
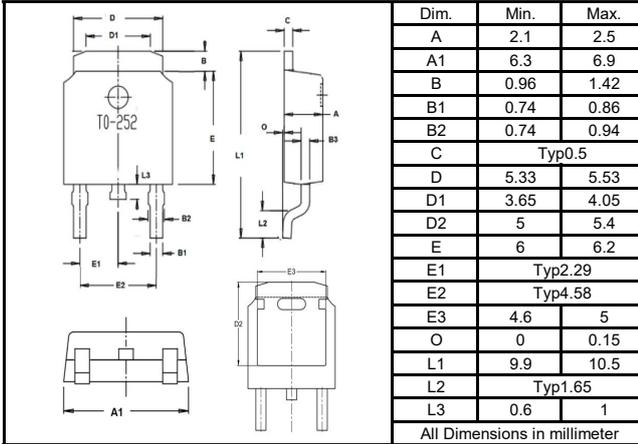


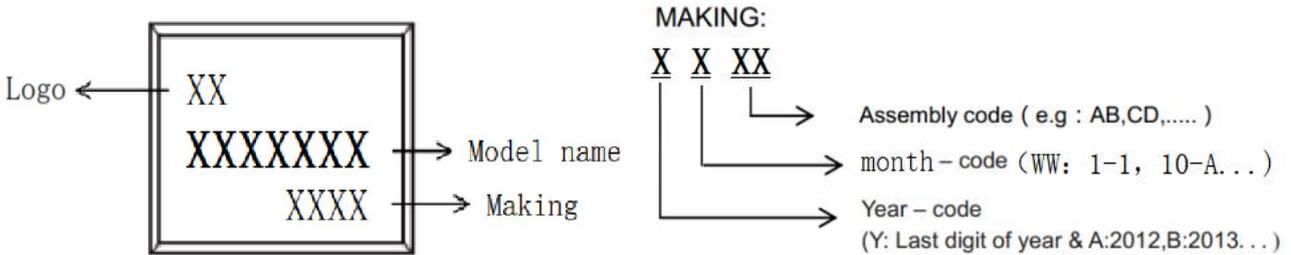
Figure 24. Safe Operating Area

## Package Outline Dimensions millimeters

T0-252



## Marking on the body



## packing instruction

PKG	Minimal Package	Mini Box	Box
TO-252			
	2500pcs/disk	5000pcs/disk	25000pcs/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 poer exceeding normal rated

poer; 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.

<http://www.lxmicro.com>

### Revision History

Rev	Changes	Date
1.0	First version	2026/1/13