Xfabsemi

X367P10TLE2

MOSFET

-6.7A ,-100V ,367mΩ P-CHANNEL MOSFET

Features

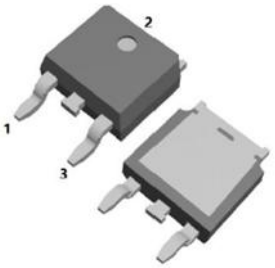
- Low gate charge
- High Power and current handing capability
- Lead free product is acquired

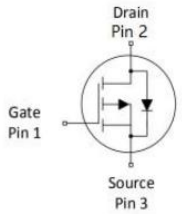
Applications

- PWM Applications
- Load Switch
- Power Management

View and Internal Schematic Diagram

TO-252-2L





Parameter	Values	Unit
BV_{DSS}	-100	V
I_D	-6.7	A
R_{Dson}(max)	367	mΩ
$V_{GS(th)}$(Typ)	-1.7	V

Ordering Code	Marking	Package	Packaging
X367P10TLE2	X367P10TLE2	TO-252-2L	Tape and reel

Absolute Maximum Ratings(T_C=25℃,unless otherwise noted)

Parameter	Symbol	Values			Unit	Note/Test Conditions
		Min	Typ	Max		
Drain-Source Voltage	V_{DSS}	-	-	-100	V	-
Gate-Source Voltage	V_{GS}	-20	-	20	V	-
Continuous Drain Current(Note 1)	I_D	-	-	-6.7	A	T_C=25℃
		-	-	-4.7	A	T_C=100℃
Pulsed Drain Current(Note 2)	I_{DM}	-	-	-26.8	A	
Single Pulse Avalanche Energy	E_{AS}	-	-	109	mJ	L=0.5mH,V_D=-50V, T_C=25℃
Maximum Power Dissipation	P_D	-	-	40	W	T_C=25℃
		-	-	20	W	T_C=100℃
Operating Junction and Storage Temperature Range	T_j,T_{STG}	-55	-	175	℃	-

Thermal Characteristics

Parameter	Symbol	Values			Unit	Note/Test Conditions
		Min	Typ	Max		
Thermal resistance , Junction to Case	$R_{th(J-c)}$	-	-	3.7	℃/W	-

Electrical Characteristics (T_j=25℃,unless otherwise noted)

Static characteristics

Parameter	Symbol	Values			Unit	Note/Test Conditions
		Min	Typ	Max		
Drain-Source Breakdown Voltage	BV_{DSS}	-100	-	-	V	V_{GS}=0V,I_D=-250μA
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS}=-100V,V_{GS}=0V
Gate-Body Leakage Current,Forward	I_{GSSF}	-	-	100	nA	V_{GS}=20V,V_{DS}=0V
Gate-Body Leakage Current,Reverse	I_{GSSR}	-	-	-100	nA	V_{GS}=-20V,V_{DS}=0V
Gate-Source Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	V_{DS}=V_{GS},I_D=-250μA
Drain-Source On-State Resistance	$R_{DS(on)}$	-	282	367	mΩ	V_{GS}=-10V,I_D=-3A
		-	302	402	mΩ	V_{GS}=-4.5V,I_D=-3A
Forward Transconductance	g_{fs}	-	10	-	S	V_{DS}=-10V,I_D=-10A
Gate resistance	Rg	-	5.2	-	Ω	V_{GS} =0V, V_{DS} =0V, f=1.0MHz

Dynamic characteristics

Parameter	Symbol	Values			Unit	Note/Test Conditions
		Min	Typ	Max		
Input Capacitance	C_{iss}	-	1199	-	pF	V_{DS}=-50V,V_{GS}=0V,f=1.0MHZ
Output Capacitance	C_{oss}	-	33.8	-		
Reverse Transfer Capacitance	C_{rss}	-	28.2	-		
Turn-On Delay Time	$t_{d(on)}$	-	13.5	-	ns	V_{DD}=-50V,R_G=3Ω, V_{GS}=-10V,R_L=16Ω
Turn-On Rise Time	t_r	-	3.8	-		
Turn-Off Delay Time	$t_{d(off)}$	-	42	-		
Turn-Off Fall Time	t_f	-	6.4	-		

Gate charge characteristics

Parameter	Symbol	Values			Unit	Note/Test Conditions
		Min	Typ	Max		
Total Gate Charge	Q_g	-	19.6	-	nC	V_{DS}=-50V,I_D=-3A,V_{GS}=-10V
Gate-Source Charge	Q_{gs}	-	6	-		
Gate-Drain Charge	Q_{gd}	-	4.2	-		

Reverse diode

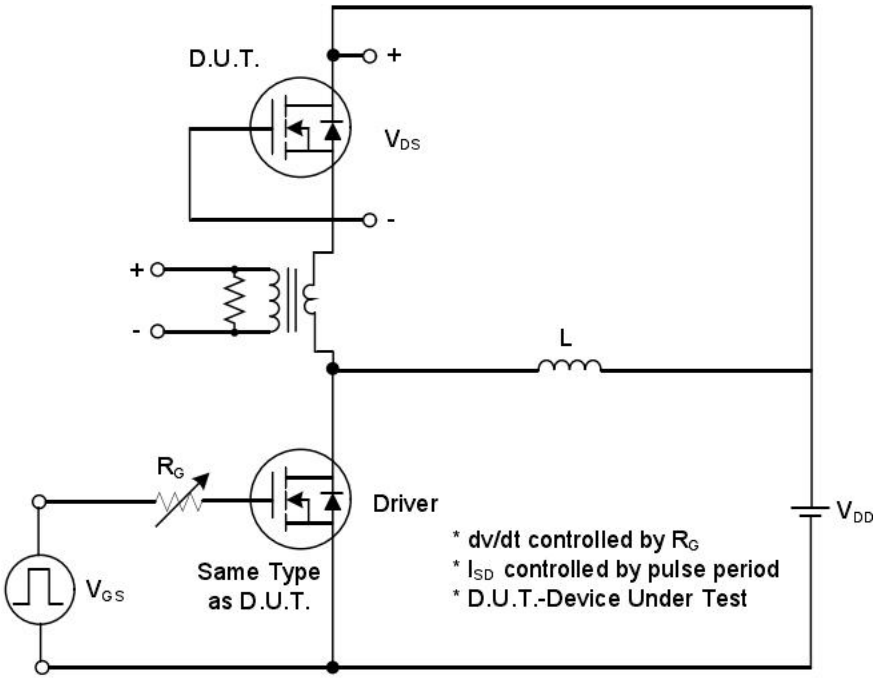
Parameter	Symbol	Values			Unit	Note/Test Conditions
		Min	Typ	Max		
Continuous Diode Forward Current	I_{SD}	-	-	-6.7	A	-
Diode Forward Voltage	V_{SD}	-	-	-1.2	V	I_S=-3A,V_{GS}=0V
Reverse Recovery Time	t_{rr}	-	42.9	-	ns	V_{GS}=0V,I_s=-3A,di/dt=-100A/μs
Reverse Recovery Charge	Q_{rr}	-	83.7	-	nC	

Notes

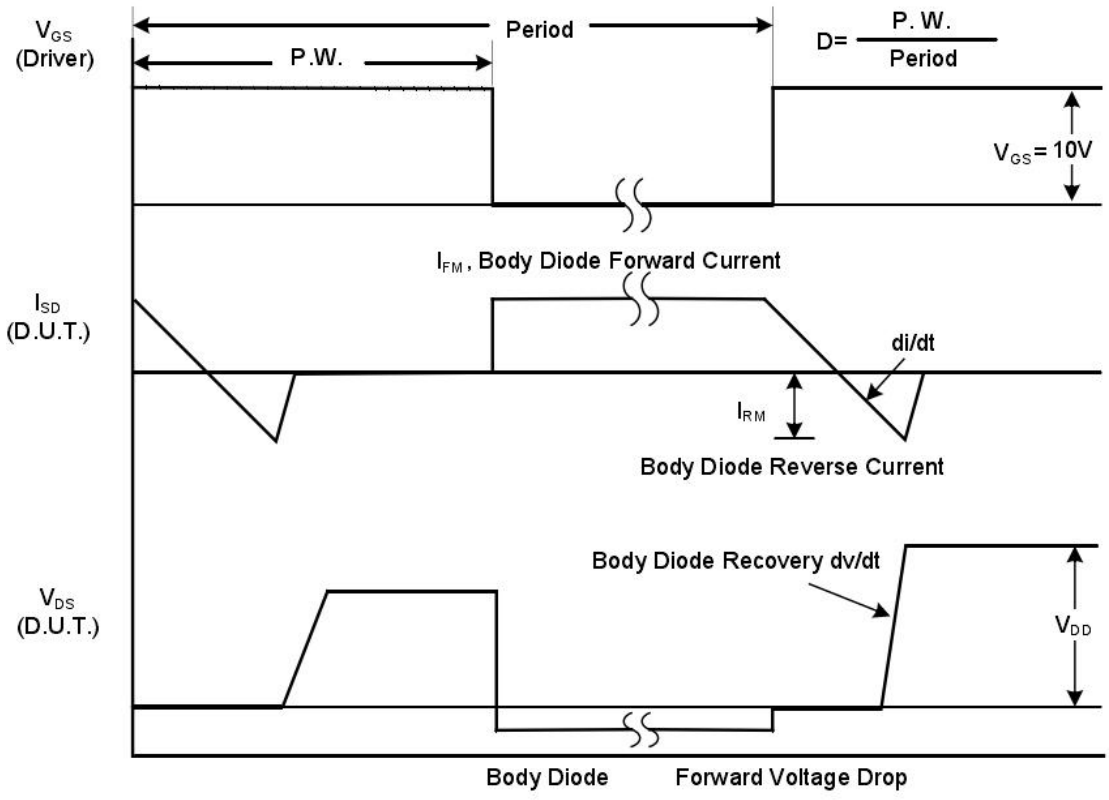
1. Computed continuous current assumes the condition of T_{j_Max} while the actual continuous current depends on the thermal & electro-mechanical application board design.

2.This single-pulse measurement was taken under T_{j_Max} = 150°C.

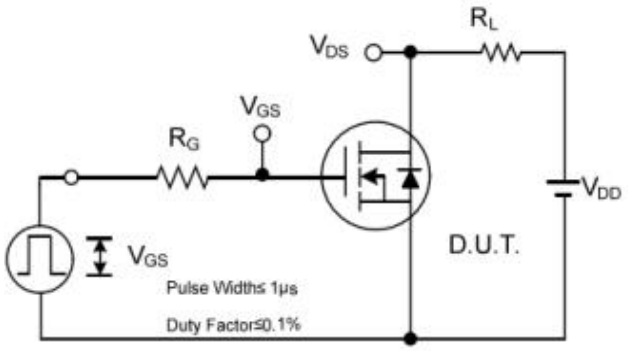
RATING AND CHARACTERISTIC CURVES



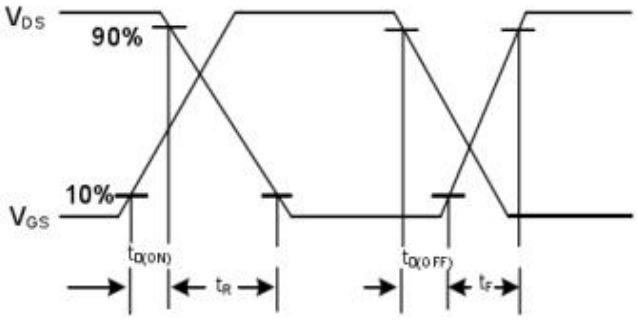
Peak Diode Recovery dv/dt Test Circuit



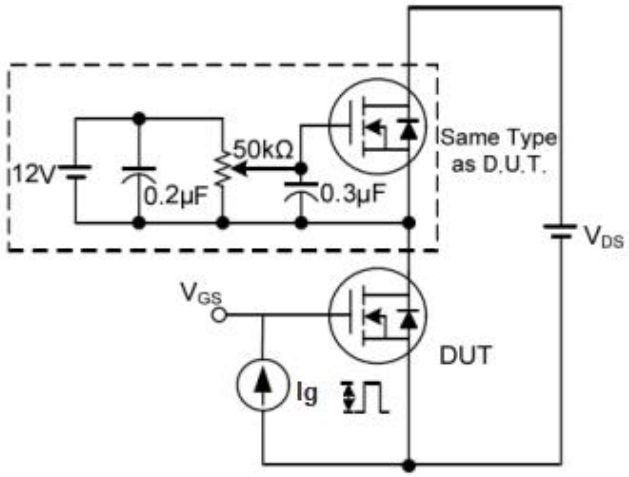
Peak Diode Recovery dv/dt Waveforms



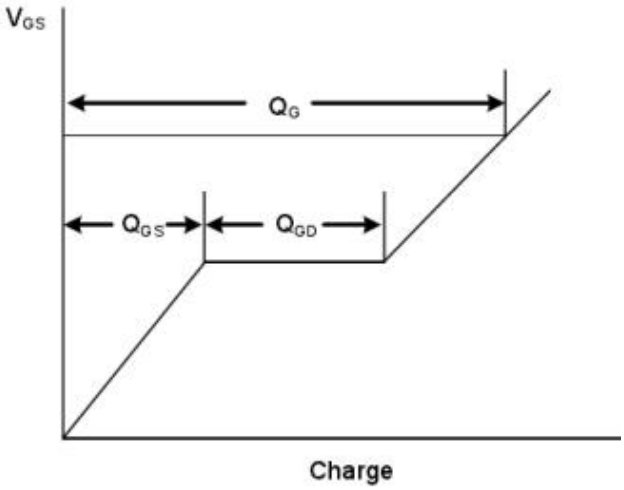
Switching Test Circuit



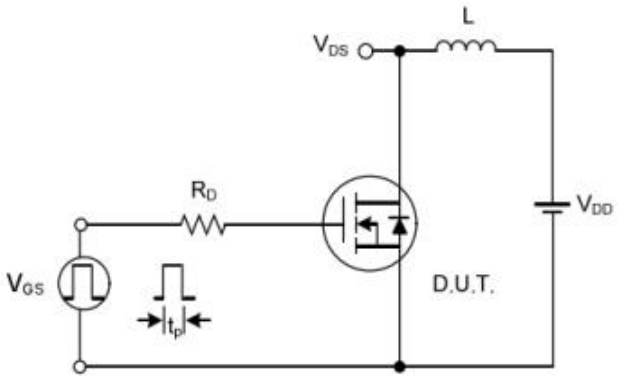
Switching Waveforms



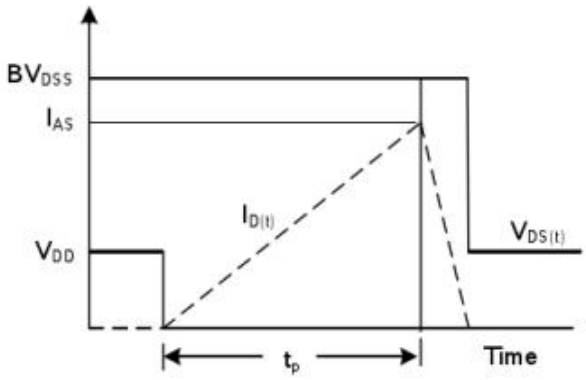
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

RATING AND CHARACTERISTIC CURVES

Figure.1 Output Characteristics

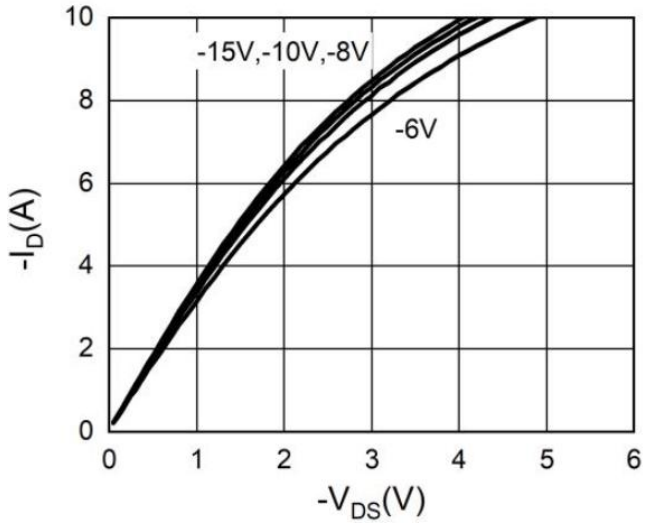


Figure.2 Transfer Characteristics

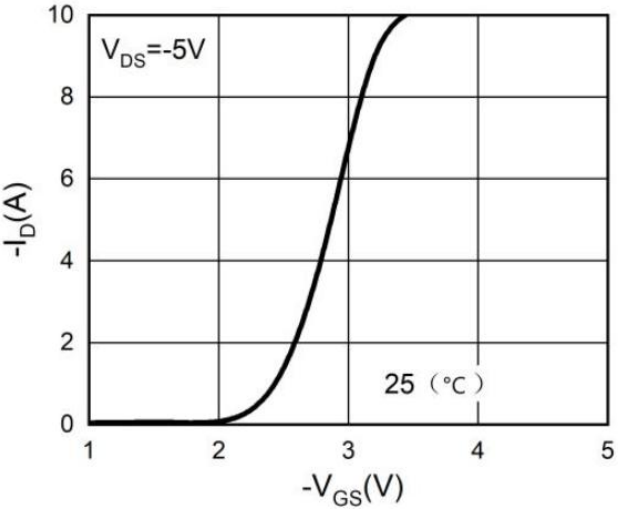


Figure.3 Power Dissipation

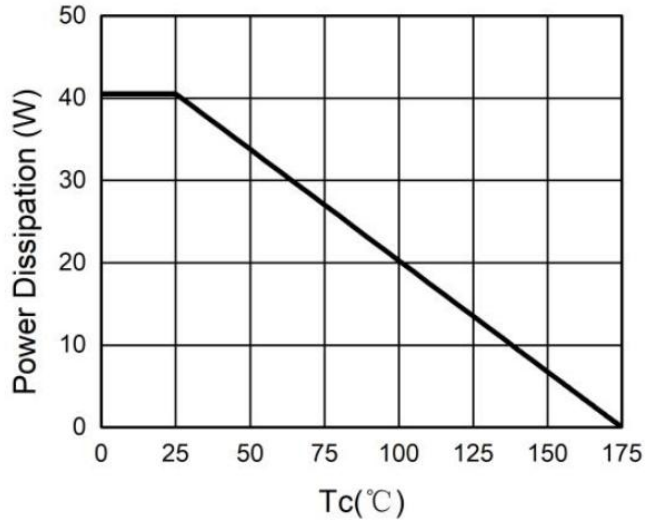


Figure.4 Drain Current

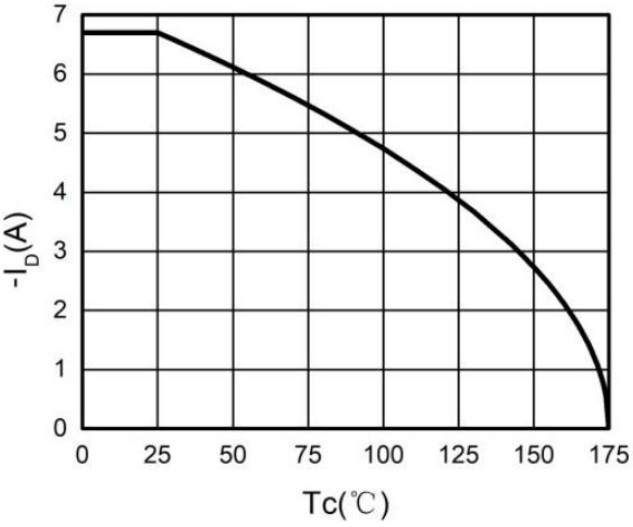


Figure.5 BV_{DSS} vs Junction Temperature

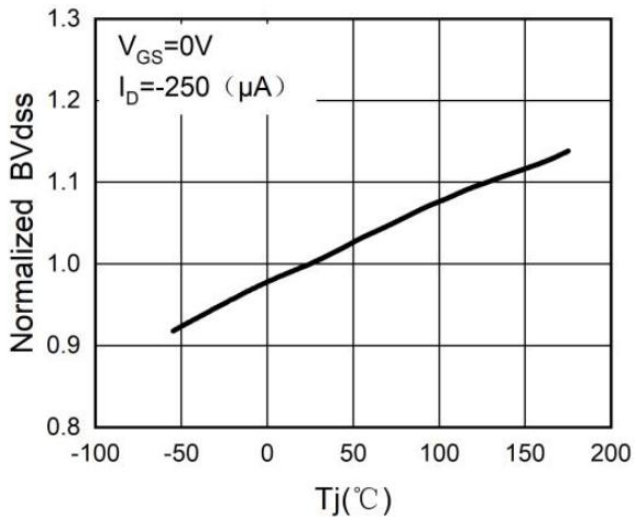


Figure.6 $R_{DS(ON)}$ vs Junction Temperature

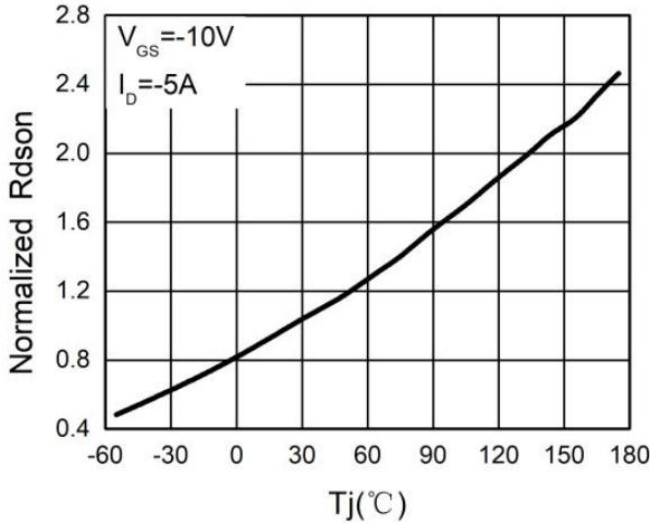


Figure.7 Gate Charge Waveforms

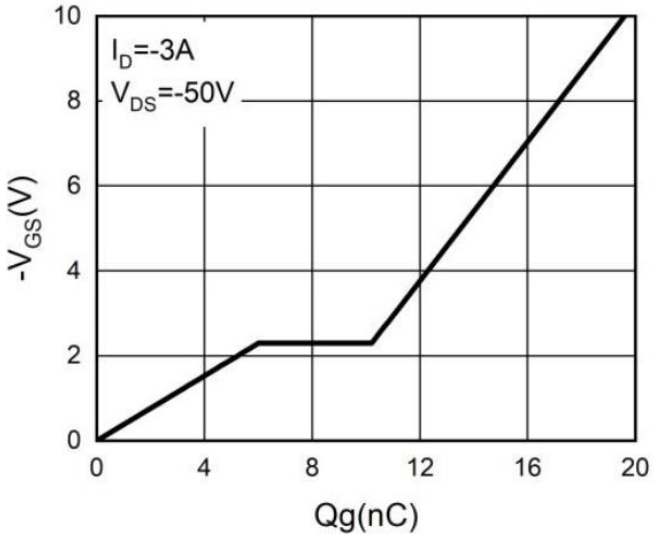


Figure.8 Capacitance

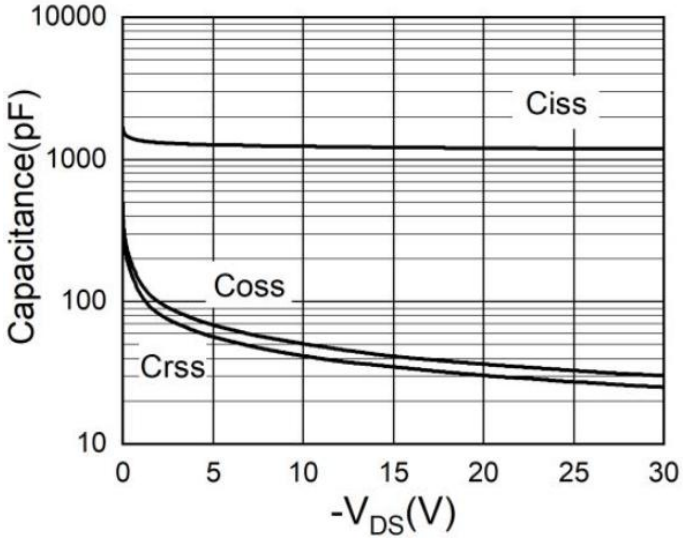
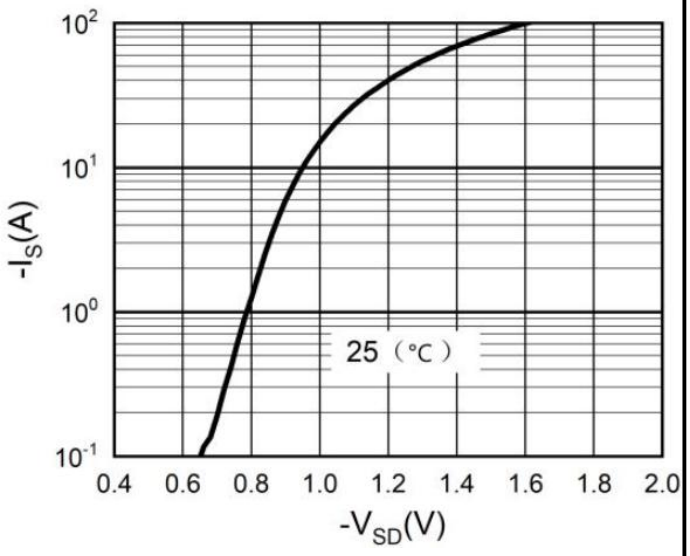
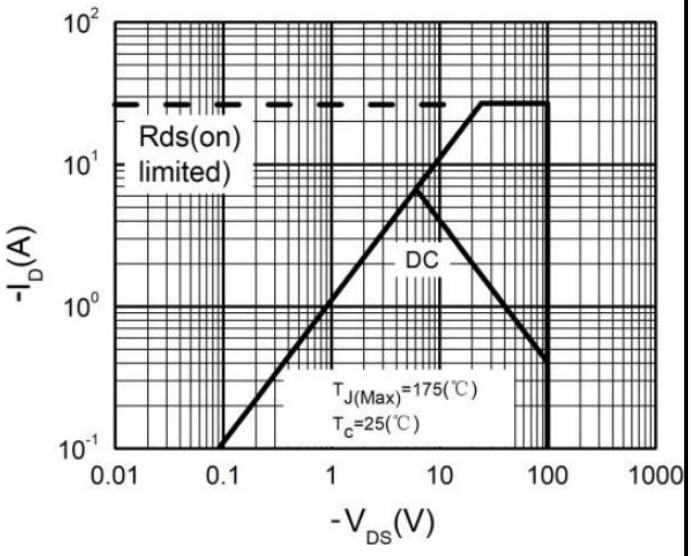
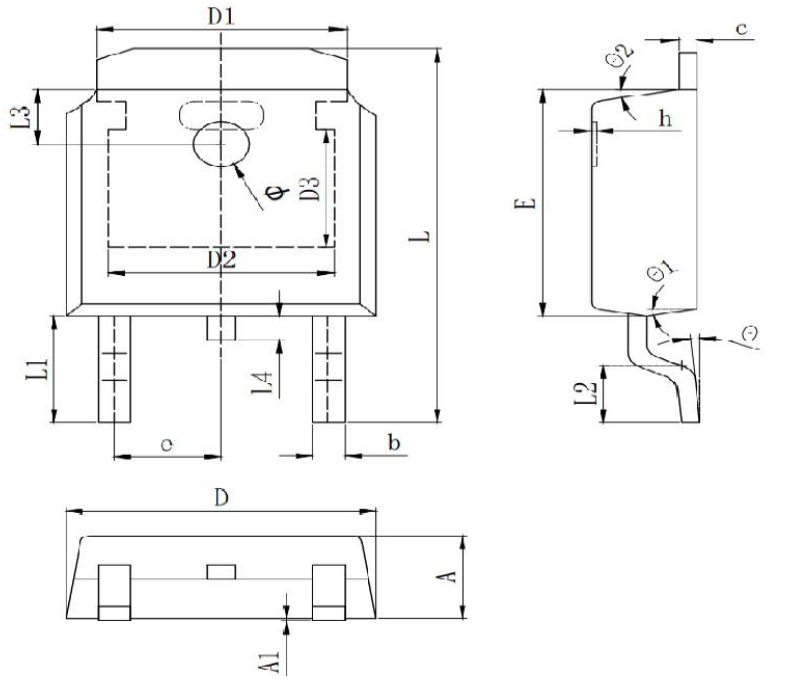


Figure.9 Body-Diode Characteristics	Figure.10 Maximum Safe Operating Area





Package Outline:TO-252-2L



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c	0.460	0.520	0.580
D	6.500	6.600	6.700
D1		5.334REF	
D2		4.826REF	
D3		3.166REF	
E	6.000	6.100	6.200
e		2.286TYP	
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1		2.888REF	
L2	1.400	1.550	1.700
L3		1.600REF	
L4	0.600	0.800	1.000
Φ	1.100	1.200	1.300
θ	0°		8°
θ1		9° TYP	
θ2		9° TYP	