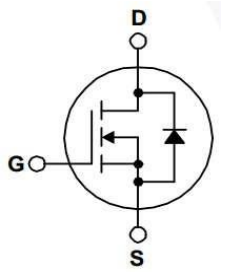
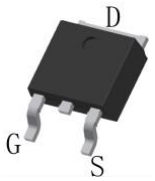
迈诺斯科技

MLS65R580D

Description

MLS65R580D, the silicon N-channel Enhanced MOSFETs, is obtained by advanced Super Junction technology which reduce the conduction loss, improve switching performance. The transistor is suitable device for SMPS,high speed switching and general purpose applications.





TO-252

KEY CHARACTERISTICS

① V_{DS}=650V,I_D=8A $R_{DS(ON)}$<0.58mΩ@V_{GS}=10V

FEATURES

① Fast Switching
② 100% avalanche tested
③ Improved dv/dt capability

APPLICATIONS

①High frequency switching mode power supply

Package Marking And Ordering Information：

Ordering Codes	Package	Product Code	Packing
MLS65R580D	TO-252	S65R580D	Tube/Reel

Electrical Characteristics @ Ta=25℃ (unless otherwise specified)

Limited Parameters:

Symbol	Parameter	Value	Units
V_{DSS}	Drain-to-Source Breakdown Voltage	650	V
I_D	Drain Current (continuous) at Tc=25℃	8	A
I_{DM}	Drain Current (pulsed)	24	A
V_{GS}	Gate to Source Voltage	±30	V
P_{tot}	Total Dissipation at Tc=25℃	26	W
T_j	Max. Operating Junction Temperature	150	℃
Eas	Single Pulse Avalanche Energy	140	mj

Electrical Parameters:

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DS}	Drain-source Voltage	V_{GS} =0V, I_D=250μA	650			V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	VGS=10V,ID=4.0A		0.50	0.58	mΩ
$V_{GS(th)}$	Gated Threshold Voltage	V_{DS}=V_{GS}, $_D$=250μA	2		4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=650V, V_{GS}= 0V			1.0	μA
$I_{GSS(F)}$	Gate-Source Forward Leakage	V_{GS} = +30V			100	nA
$I_{GSS(R)}$	Gate-Source Reverse Leakage	V_{GS} = -30V			-100	nA
C_{iss}	Input Capacitance	VGS = 0V VDS = 25 Vf = 1.0MHz		410.8		pF
C_{oss}	Output Capacitance			41.7		pF
C_{rss}	Reverse Transfer Capacitance			3.1		pF
Q_g	Total Gate Charge	ID =5.0A VDD =400V VGS = 10V		8.6		nC
Q_{gs}	Gate-Source Charge			2.2		nC
Q_{gd}	Gate-Drain Charge			3.8		nC

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	ID =4.0A VDD =400V VGS =10 VRG=25Ω		26.4		nS
t_r	Turn-on Rise Time			17.9		nS
$t_{d(off)}$	Turn-off Delay Time			56.2		nS
t_f	Turn-off Fall Time			14		nS

Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)	TC=25 °C	--	--	18	A
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	24	A
V_{SD}	Diode Forward Voltage	ID=8A, VGS=0V(Note4)	--	--	1.3	V
T_{rr}	Reverse Recovery Time	IS=4A, Tj = 25°C dIF/dt=100A/us, VGS=0V	--	214.3	--	ns
Q_{rr}	Reverse Recovery Charge		--	1.7	--	nC

Characteristics Curves

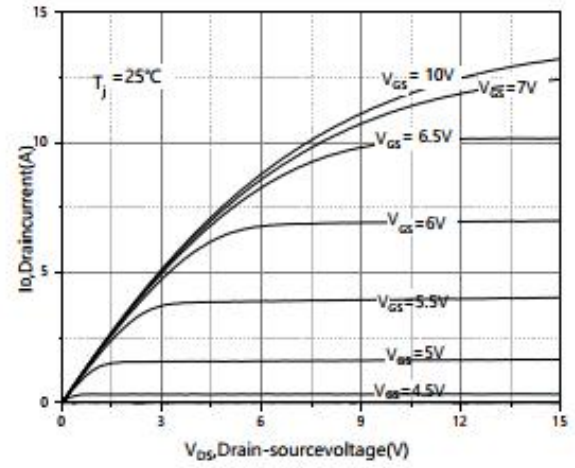


Figure1.T yp.out putcharacteristics

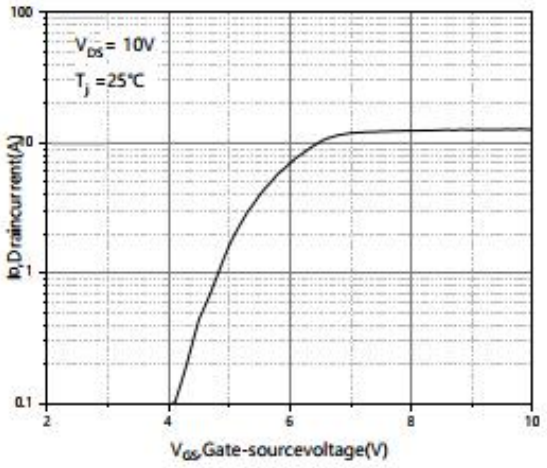


Figure2.T yp.transfercharacteristics

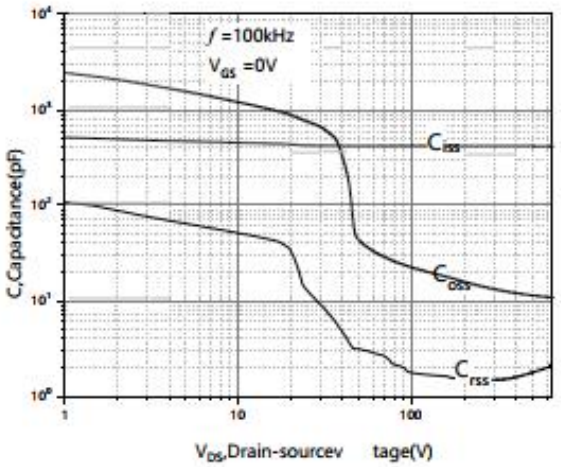


Figure3.T yp.capacitances

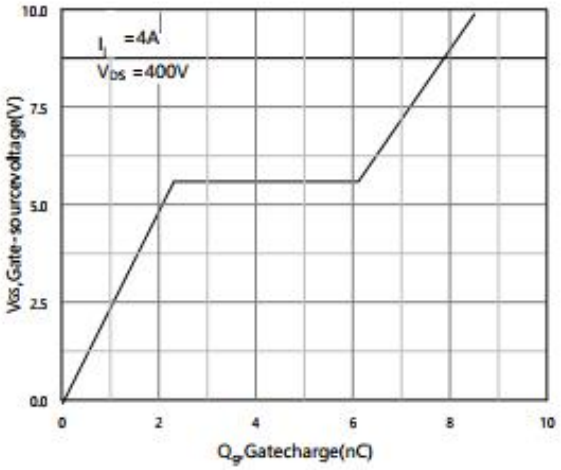


Figure4.T yp. gatechar ge

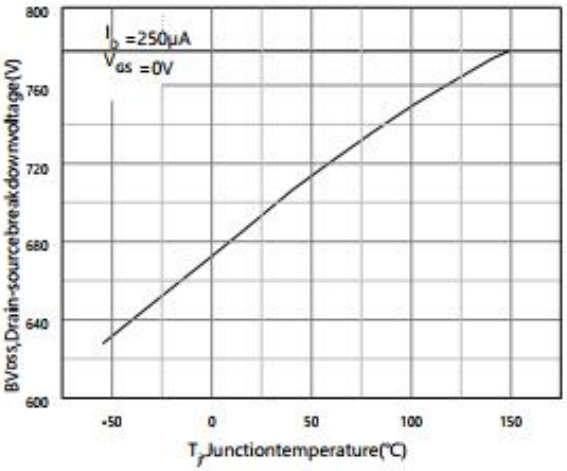


Figure5.Drain-sourcebreakdownvolta ge

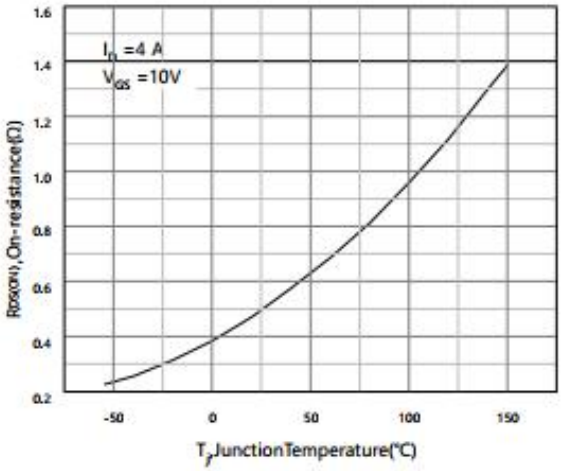


Figure6.Drain-sourceon-stateresistance

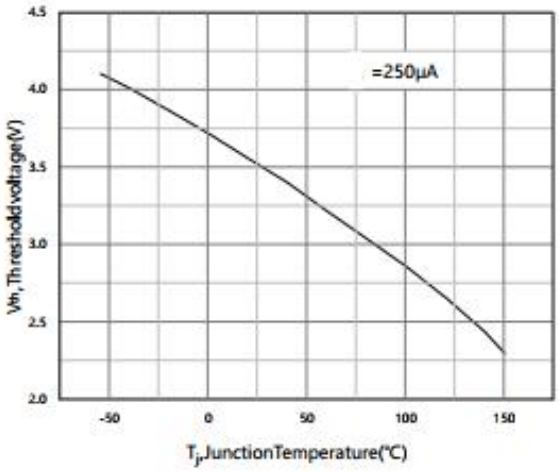


Figure7.Thresholdvolta ge

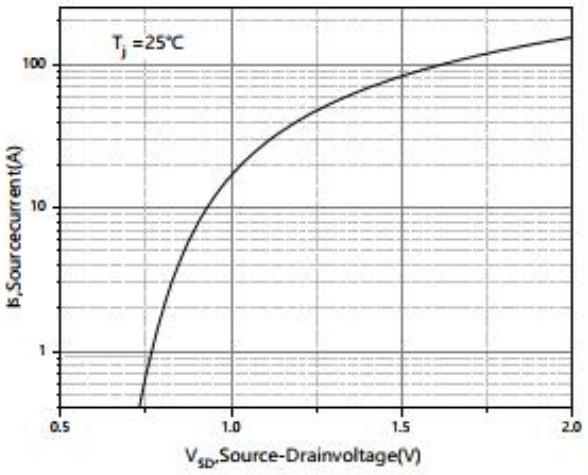


Figure8.Forwardcharacteristicofbod y diode

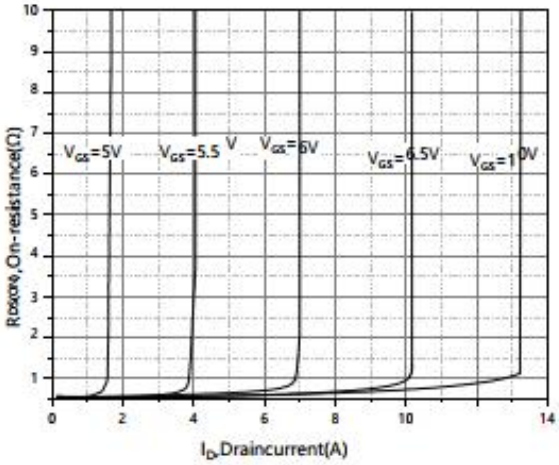


Figure9.Drain-s urceon-stateresistance

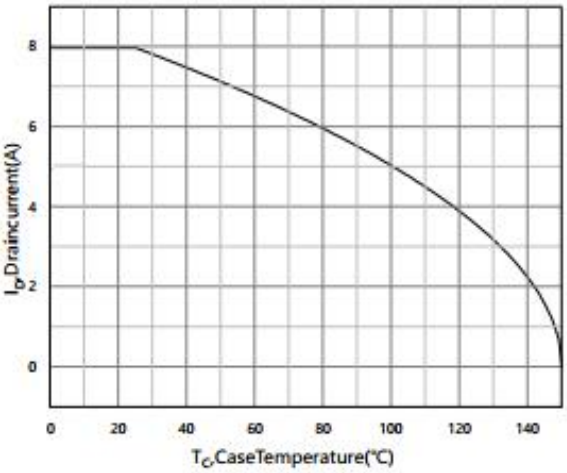


Figure10.Draincurrent

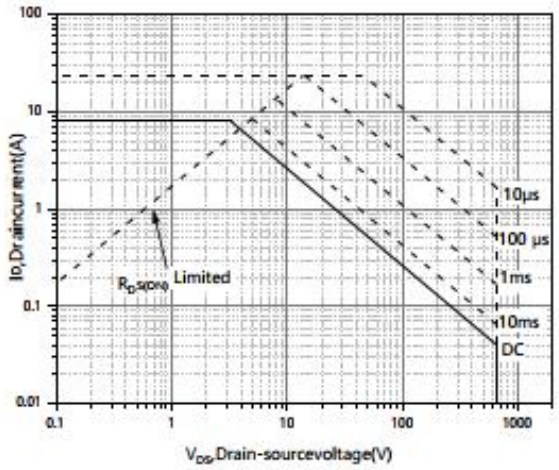
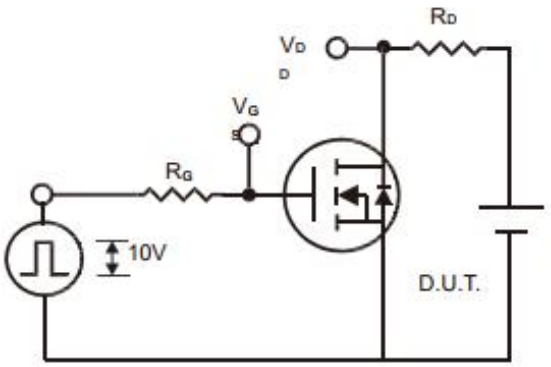
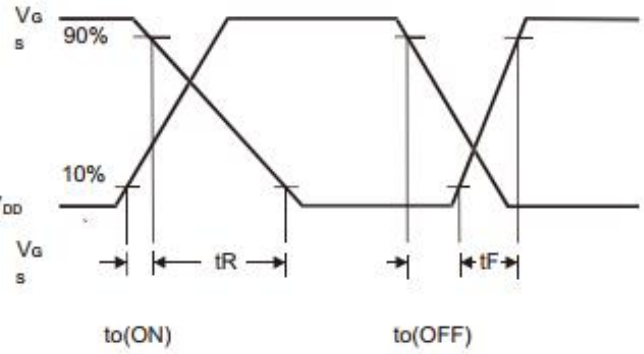


Figure11.SafeoperationareaT C=25°C

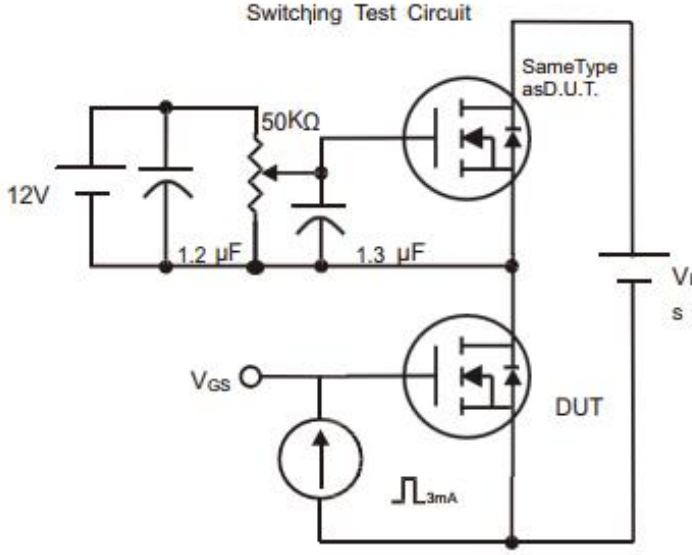
GateChargeTestCircuit&Waveform



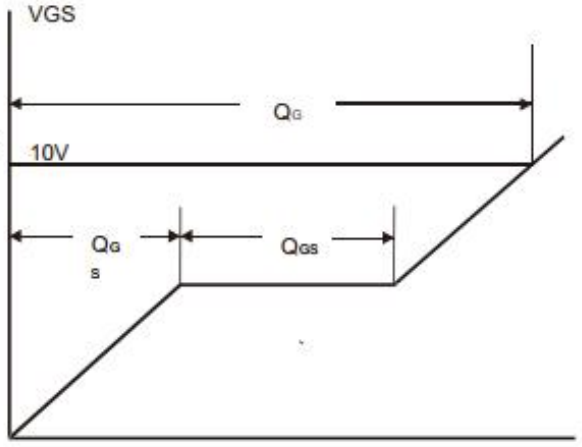
Switching Test Circuit



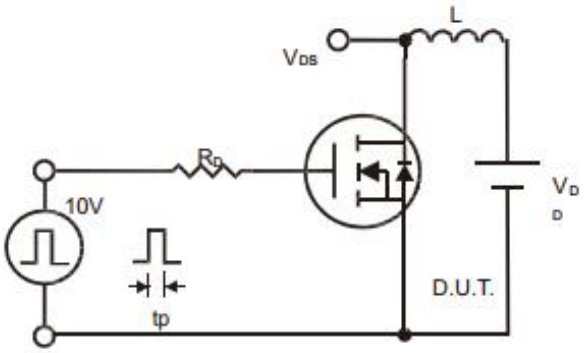
Switching Waveforms



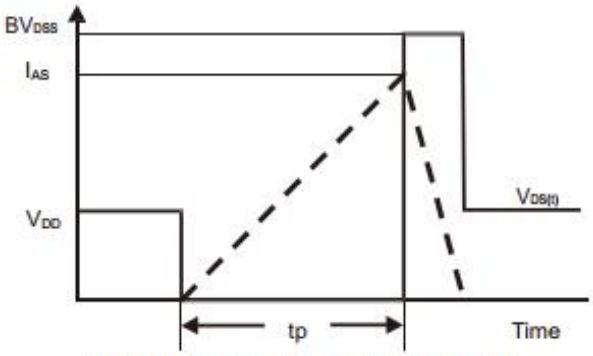
GateChargeTestCircuit



Gate Charge Waveform

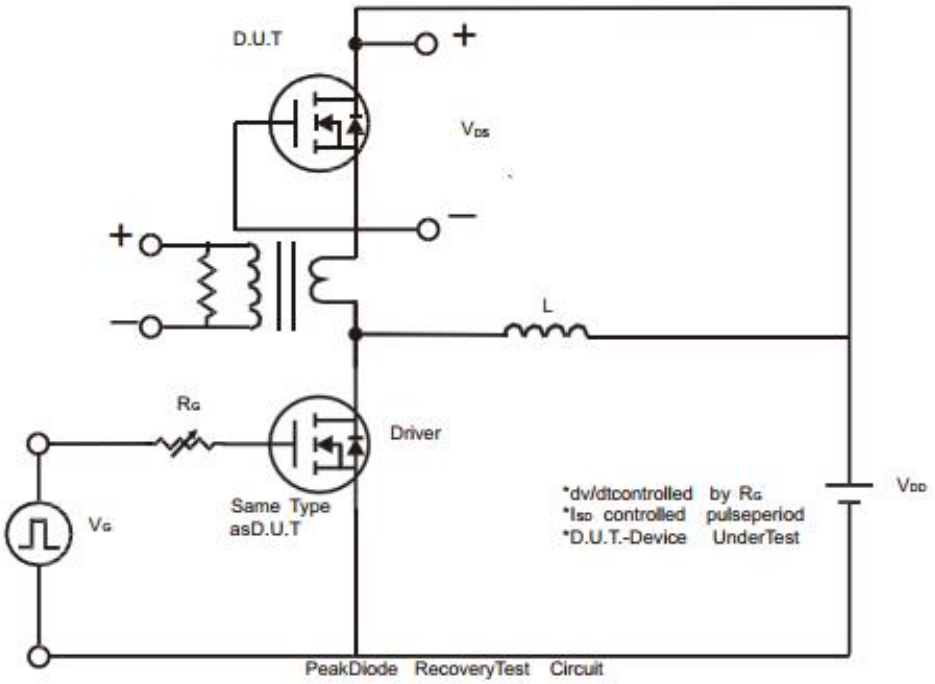


Unclamped Inductive Switching TestCircuit

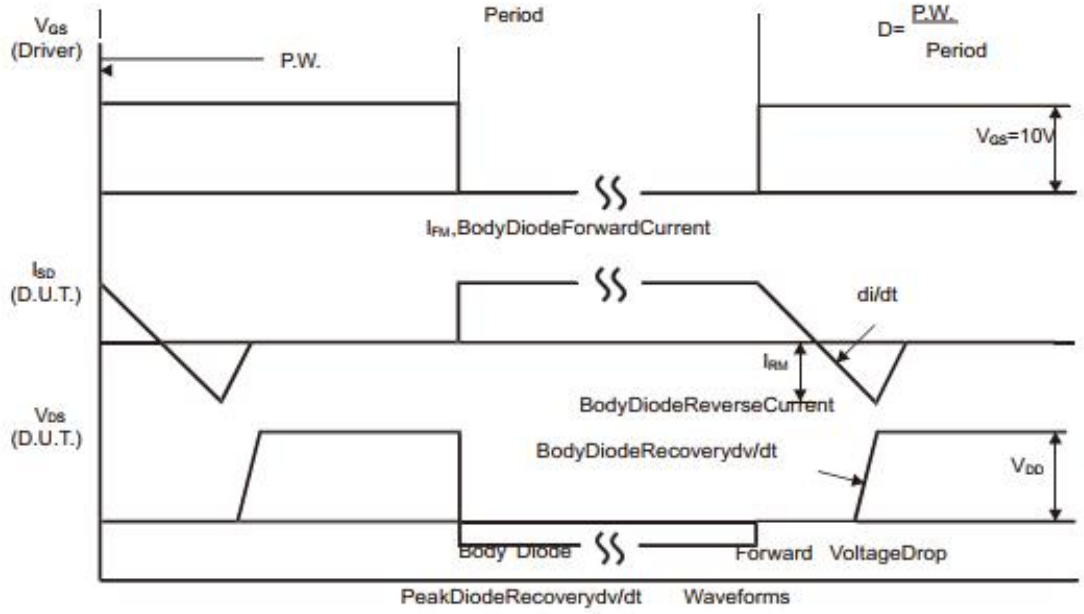


Unclamped Inductive Switching Waveforms

PeakDiodeRecoverydv/dtTestCircuit&Waveform

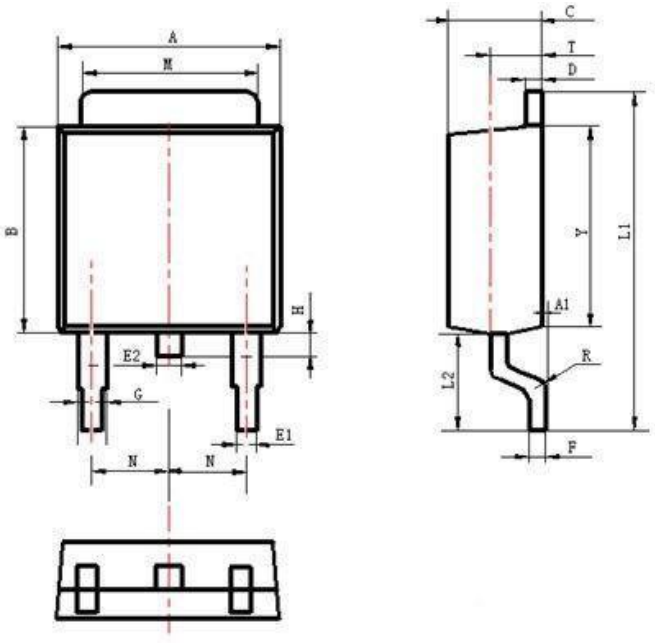


PeakDiode RecoveryTest Circuit



PeakDiodeRecoverydv/dt Waveforms

Package Description



Items	Values(mm)	
	MIN	MAX
A	6.30	6.90
A1	0	0.13
B	5.70	6.30
C	2.10	2.50
D	0.30	0.60
E1	0.60	0.90
E2	0.70	1.00
F	0.30	0.60
G	0.70	1.20
L1	9.60	10.50
L2	2.70	3.10
H	0.60	1.00
M	5.10	5.50
N	2.09	2.49
R	0 .3	
T	1.40	1.60
Y	5.10	6.30

TO-252 Package

NOTE:

1. Exceeding the maximum ratings of the device in performance may cause damage to the device, even the permanent failure, which may affect the dependability of the machine. Please do not exceed the absolute maximum ratings of the device when circuit designing.
2. When installing the heat sink, please pay attention to the torsional moment and the smoothness of the heat sink.
3. MOSFETs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.
4. Shenzhen Minos reserves the right to make changes in this specification sheet and is subject to change withoutprior notice.

CONTACT:

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