





Power MOSFETS

DATASHEET

LM50J90DEE6A

Dual N-Channel
Enhancement Mode MOSFET

 Leadpower-semiconductor Corp., Ltd

 sales@leadpower-semi.com

 (03) 6577339 FAX : (03) 6577229

 www.leadpower-semi.com

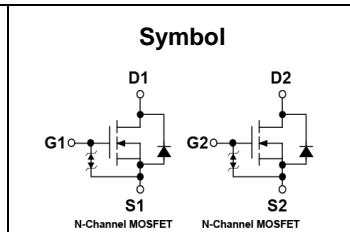
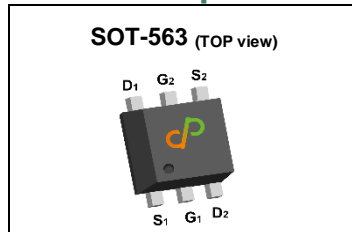


Quality Management Systems

ISO 9001:2015 Certificate

Dual N-Channel Enhancement Mode MOSFET

Pin Description



Ordering Information

Symbol	Dual N-Channel	Unit
V_{DSS}	50	V
$R_{DS(ON)-Max}$	1.9	Ω
I_D	0.33	A

Feature

- Low V_{th} low gate drive
- ROHS Compliant & Halogen-Free
- ESD protection

Applications

- Small signal application
- Load switch

Ordering Information

Orderable Part Number	Package Type	Form	Shipping	Marking
LM50J90DEE6A	SOT-563	Tape & Reel	3000 / Tape & Reel	0□□□

Note : □□□ = Lot Code

Absolute Maximum Ratings (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter	Dual N-Channel	Unit	
V_{DSS}	Drain-Source Voltage	50	V	
V_{GSS}	Gate-Source Voltage	±20		
T_J	Maximum Junction Temperature	150	°C	
T_{STG}	Storage Temperature Range	-55 to 150	°C	
$I_{DM}^{①}$	Pulse Drain Current Tested	$T_A=25^\circ C$	0.82	A
I_D		Continuous Drain Current	$T_A=25^\circ C$	0.33
	$T_A=70^\circ C$		0.26	
P_D	Maximum Power Dissipation	$T_A=25^\circ C$	0.42	W
		$T_A=70^\circ C$	0.27	

Thermal Characteristics

Symbol	Parameter	Rating	Unit	
$R_{\theta JA}^{②}$	Thermal Resistance-Junction to Ambient	Steady State	300	°C/W

Note ① : Max. current is limited by junction temperature.

Note ② : Surface Mounted on 1in² FR-4 board with 1oz.

Dual N-Channel Electrical Characteristics (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250uA	50	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V _{DS} =40V, V _{GS} =0V	-	-	1	uA
V_{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250uA	0.6	1.2	1.5	V
I_{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±10	uA
R_{DS(ON)} ^③	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =0.22A	-	1.6	1.9	Ω
		V _{GS} =4.5V, I _{DS} =0.19A	-	1.7	2.2	
		V _{GS} =2.5V, I _{DS} =0.05A	-	2	-	
gfs	Forward Transconductance	V _{DS} =3V, I _{DS} =0.11A	-	0.6	-	S
Dynamic Characteristics ^④						
C_{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =30V, Freq.=1MHz	-	25	-	pF
C_{oss}	Output Capacitance		-	3.1	-	
C_{riss}	Reverse Transfer Capacitance		-	2.2	-	
t_{d(ON)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =50V, I _D =0.23A, R _{GEN} =10Ω	-	0.5	-	nS
t_r	Turn-on Rise Time		-	19.3	-	
t_{d(OFF)}	Turn-off Delay Time		-	26.3	-	
t_f	Turn-off Fall Time		-	22.2	-	
Q_g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =50V I _D =1A	-	0.92	-	nC
Q_g	Total Gate Charge	V _{GS} =10V, V _{DS} =50V, I _D =1A	-	1.7	-	
Q_{gs}	Gate-Source Charge		-	0.3	-	
Q_{gd}	Gate-Drain Charge		-	0.3	-	
Source-Drain Characteristics						
V_{SD} ^③	Diode Forward Voltage	I _{SD} =0.11A, V _{GS} =0V	-	0.8	1.1	V
t_{rr}	Reverse Recovery Time	I _F =0.11A, V _{GS} =0	-	7.2	-	nS
Q_{rr}	Reverse Recovery Charge	dI _F /dt=100A/μs	-	1.9	-	nC

Note ③ : Pulse test (pulse width≤300us, duty cycle≤2%).

Note ④ : Guaranteed by design, not subject to production testing.

Dual N-Channel Typical Characteristics

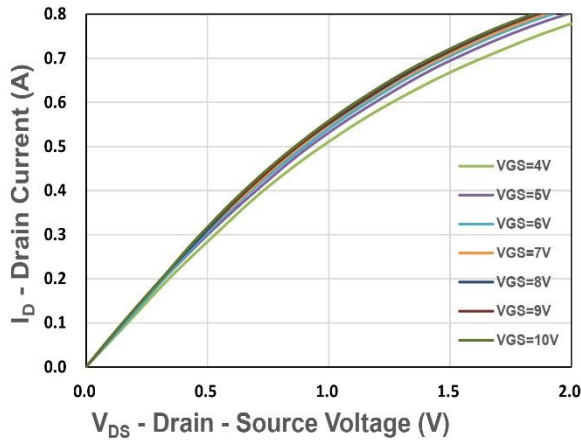


Figure 1. Output Characteristics

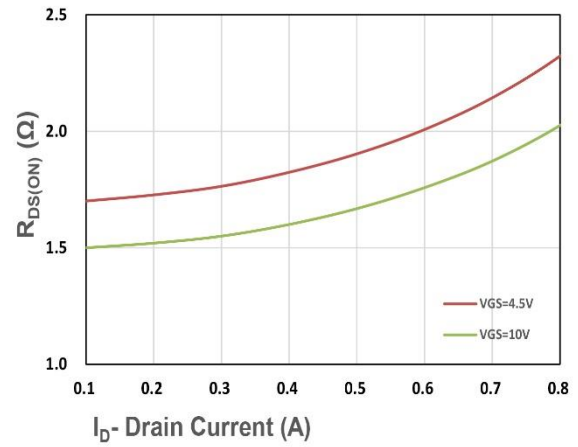


Figure 2. On-Resistance vs. ID

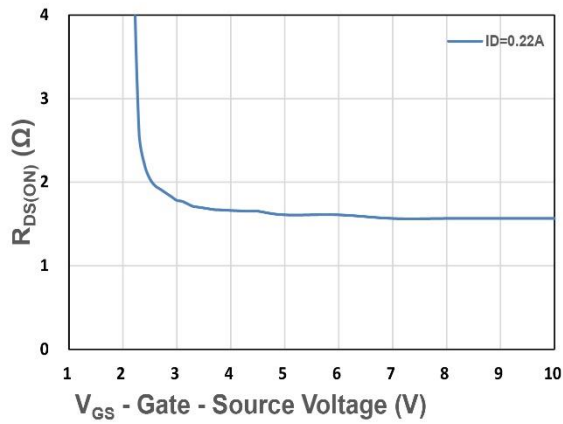


Figure 3. On-Resistance vs. VGS

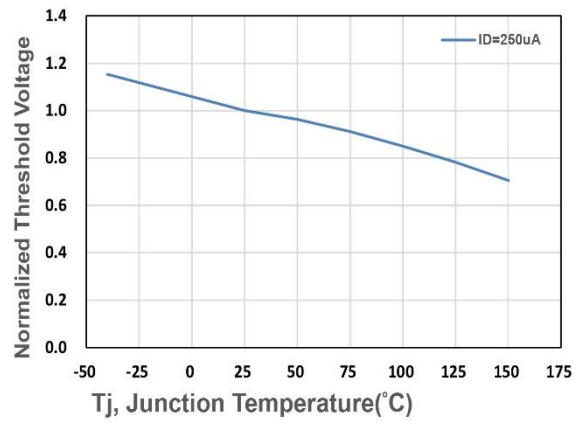


Figure 4. Gate Threshold Voltage

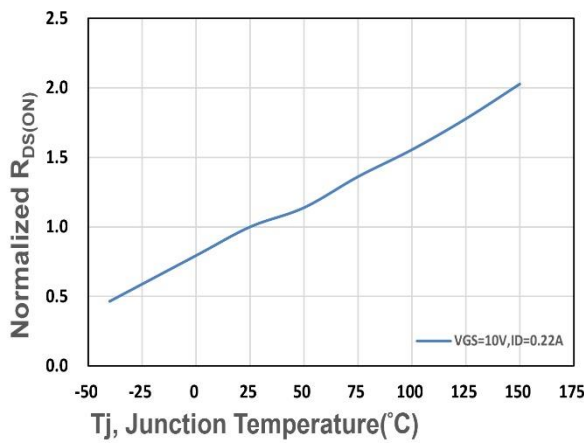


Figure 5. Drain-Source On Resistance

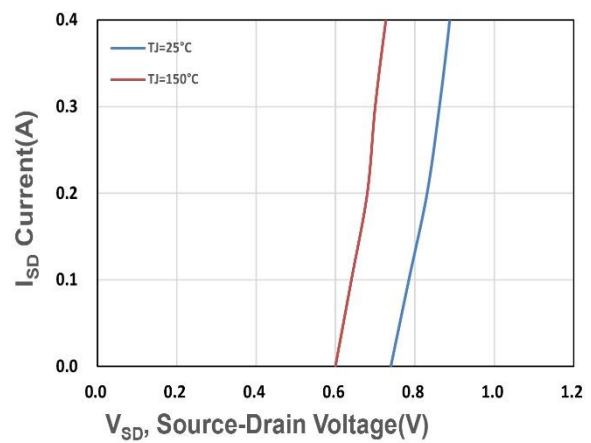
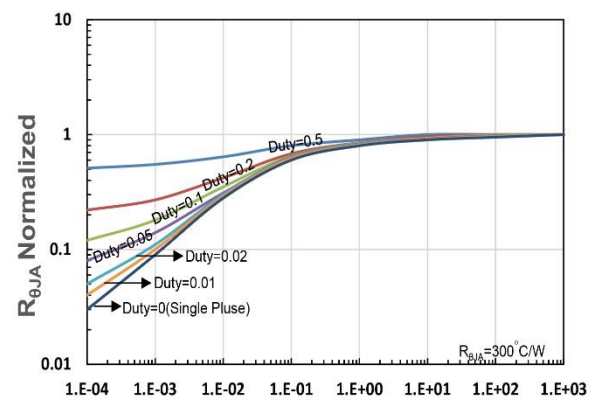
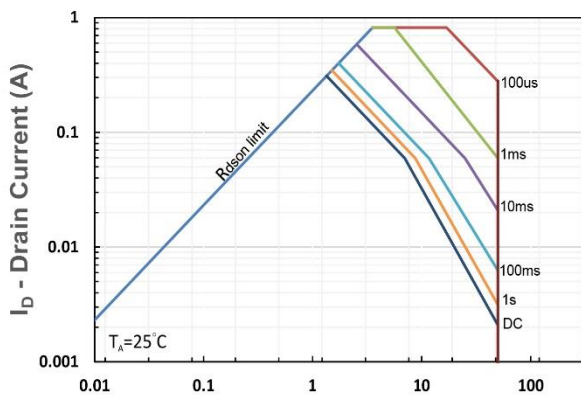
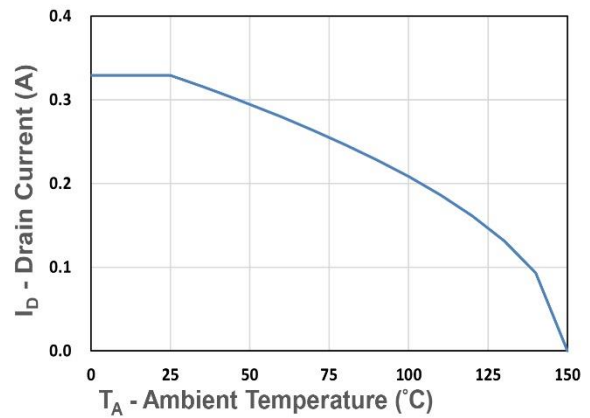
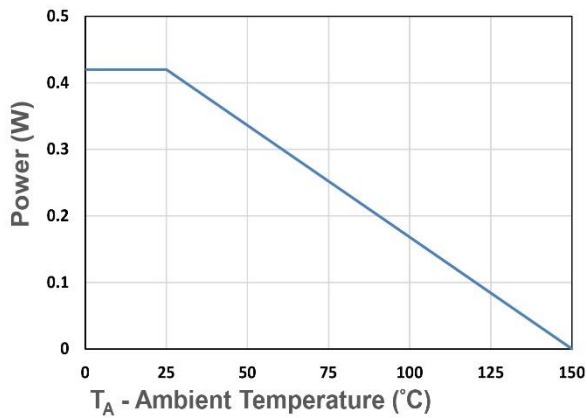
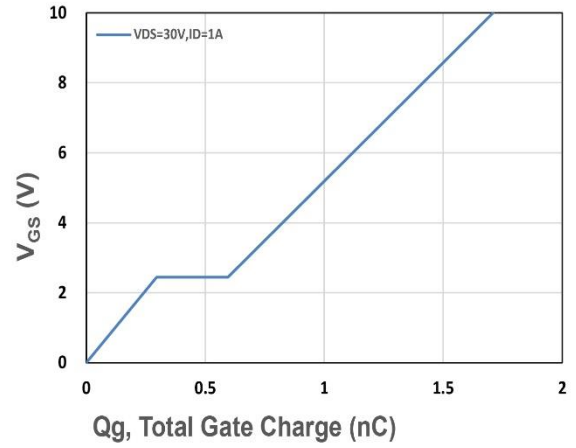
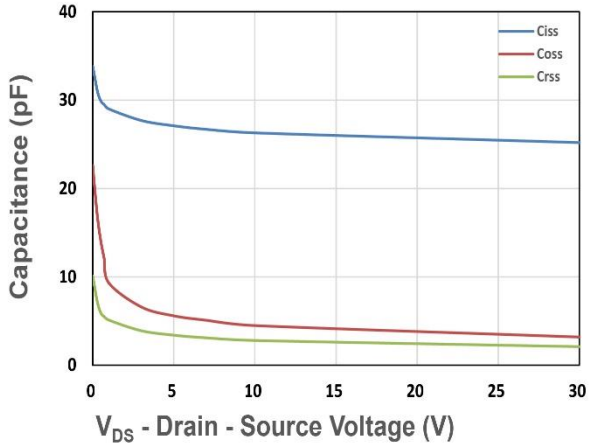
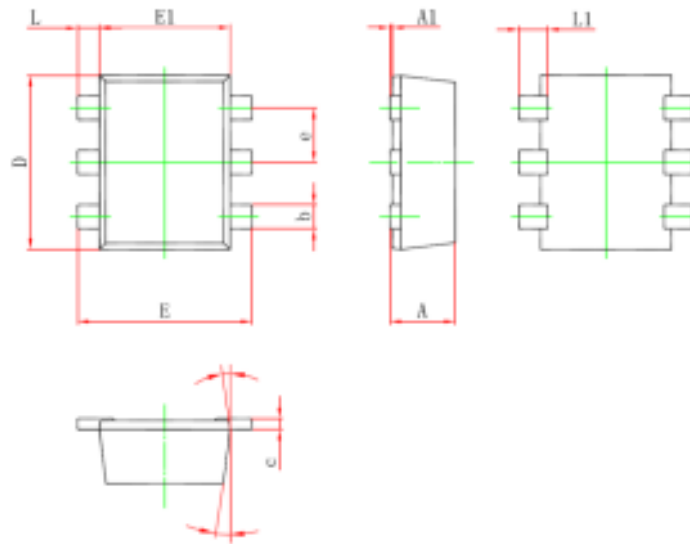


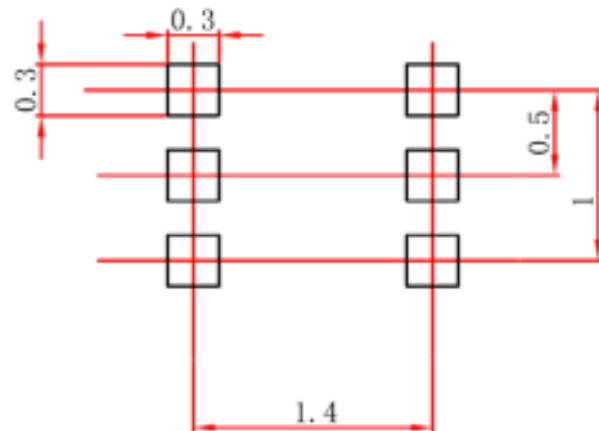
Figure 6. Source-Drain Diode Forward



Package Information : SOT-563 封裝尺寸



Suggested Pad Layout(Unit:mm)



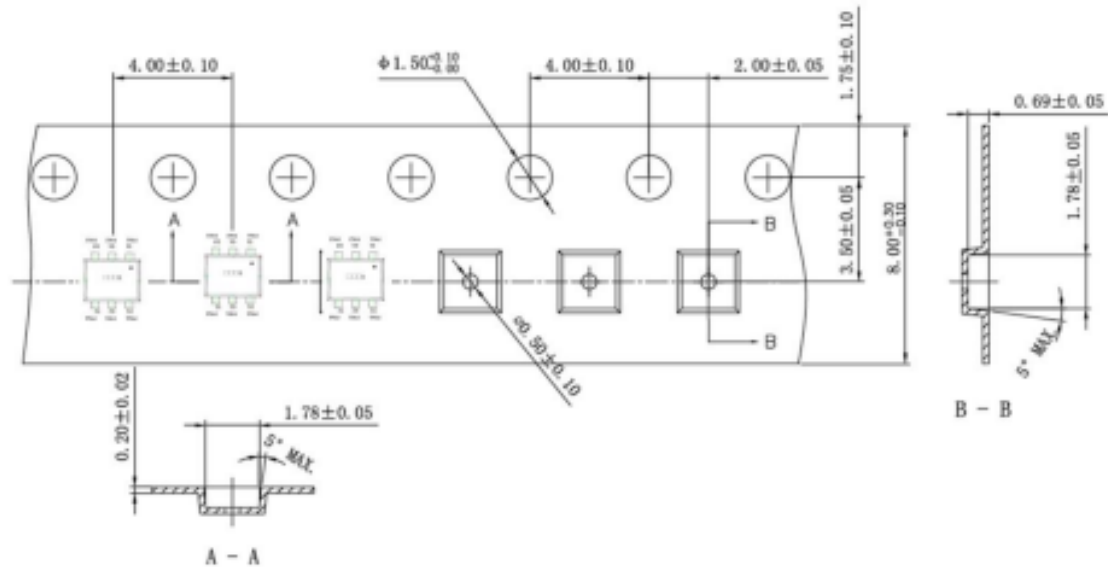
Unit:mm	Min	Typ	Max
A	0.525	/	0.600
A1	0.000	/	0.050
e	0.450	/	0.550
c	0.090	/	0.160
D	1.500	/	1.700
b	0.170	/	0.270
E1	1.100	/	1.300
E	1.500	/	1.700
L	0.100	/	0.300
L1	0.200	/	0.400
θ	7°REF.		

LM50J90DEE6A

SOT-563 Tape & Reel Dimension

Tape Dimension:

Feed Direction →



Reel Dimension:

