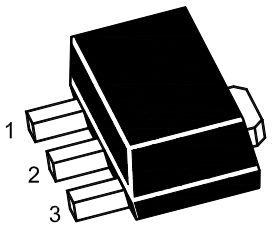
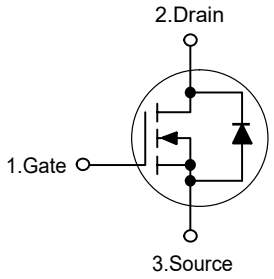
SOT-89-3L Plastic-Encapsulate MOSFETS

N-Channel Enhancement Mode Power MOSFET

SOT-89-3L



1. Gate 2.Drain 3.Source



Features:

- High density cell design for ultra low $R_{DS(on)}$
- Excellent package for good heat dissipation
- V_{DS}= 100V,I_D= 2A
  $R_{DS(on)}$< 240mΩ @V_{GS}= 10V

Applications:

- Power Switching Application
- Uninterruptible Power Supply

Marking Code: 0102Q

Absolute Maximum Ratings

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	2	A
Drain Current-Pulsed Note1	I_{DM}	5	A
Maximum Power Dissipation	P_D	1.2	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance,Junction-to-Ambient Note2	$R_{\theta JA}$	104	°C/W

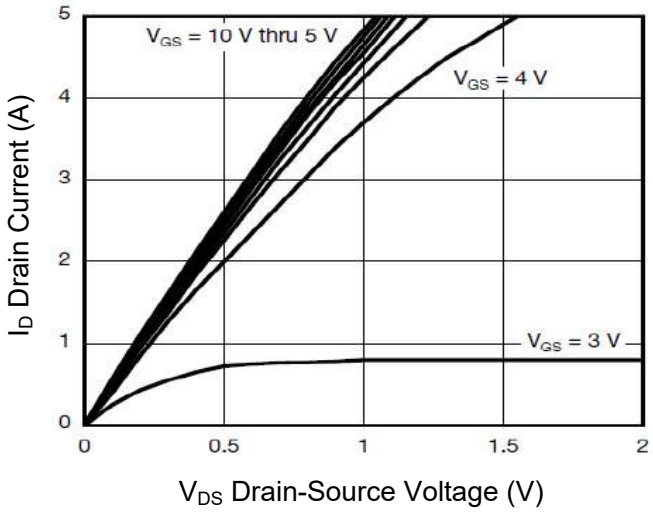
Electrical Characteristics

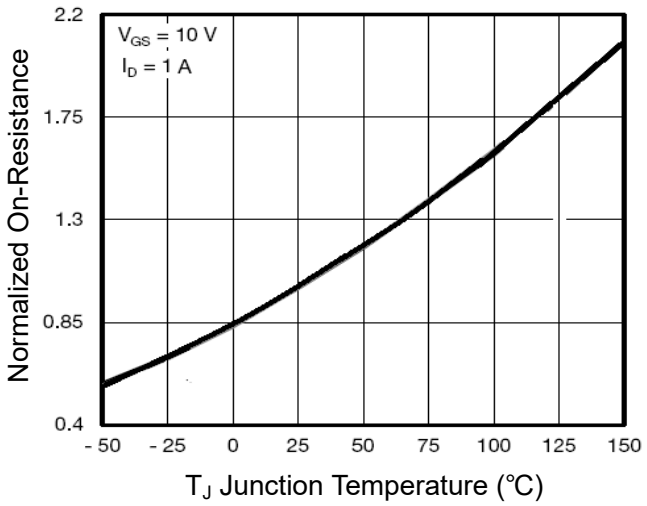
(Ta=25℃ unless otherwise specified)

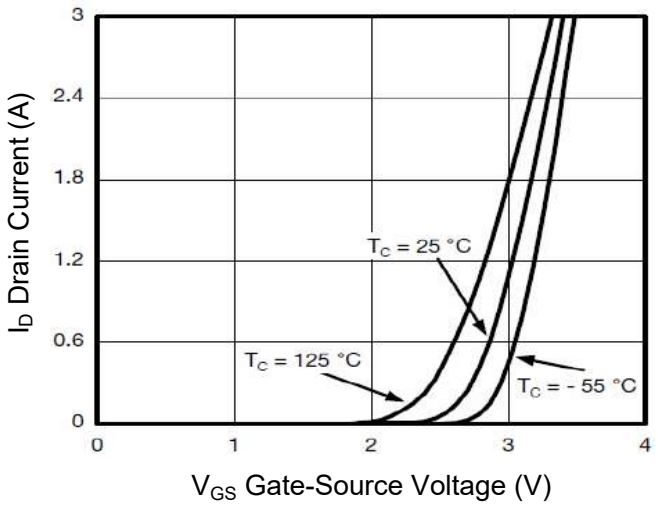
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	100	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note3	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1.2	1.8	2.5	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS}=10V,I_D=1A	--	210	240	mΩ
Forward Transconductance Note3	g_{FS}	V_{DS}=5V,I_D=1A	1	--	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHz	--	190	--	pF
Output Capacitance	C_{oss}		--	22	--	pF
Reverse Transfer Capacitance	C_{rss}		--	13	--	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=50V,I_D=1.3A,R_L=39Ω V_{GS}=10V,R_{GEN}=1Ω	--	6	--	nS
Turn-on Rise Time	t_r		--	10	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	10	--	nS
Turn-off Fall Time	t_f		--	6	--	nS
Total Gate Charge	Q_g	V_{DS}=50V,I_D=1.3A, V_{GS}=10V	--	5.2	--	nC
Gate-Source Charge	Q_{gs}		--	0.75	--	nC
Gate-Drain Charge	Q_{gd}		--	1.4	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	V_{SD}	V_{GS}=0V,I_S=1.3A	--	--	1.2	V
Diode Forward Current Note2	I_S		--	--	2	A

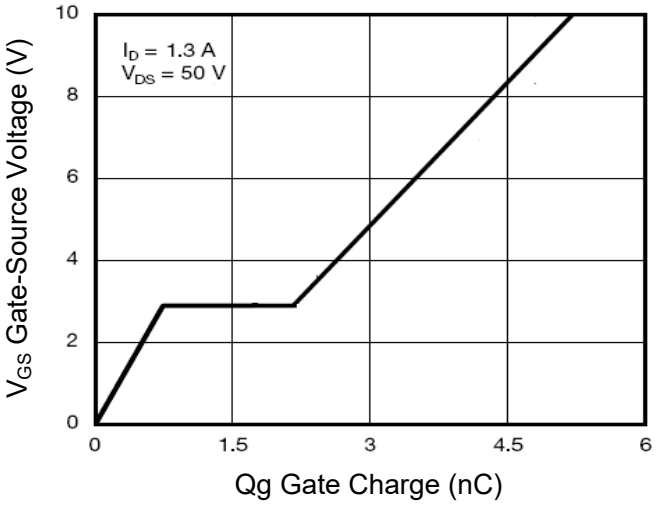
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

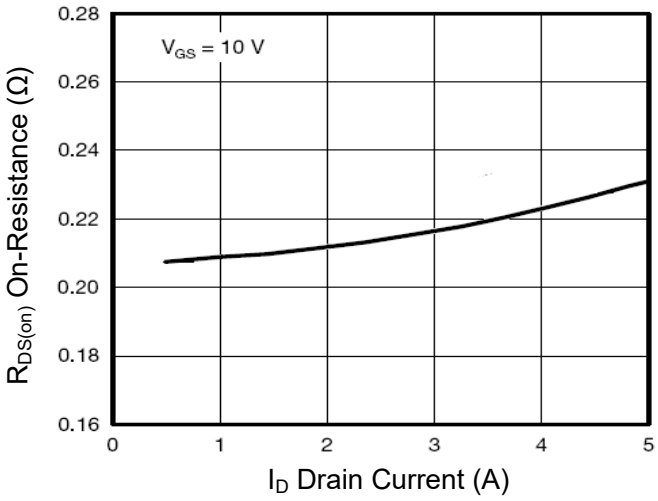
Typical Characteristic Curves

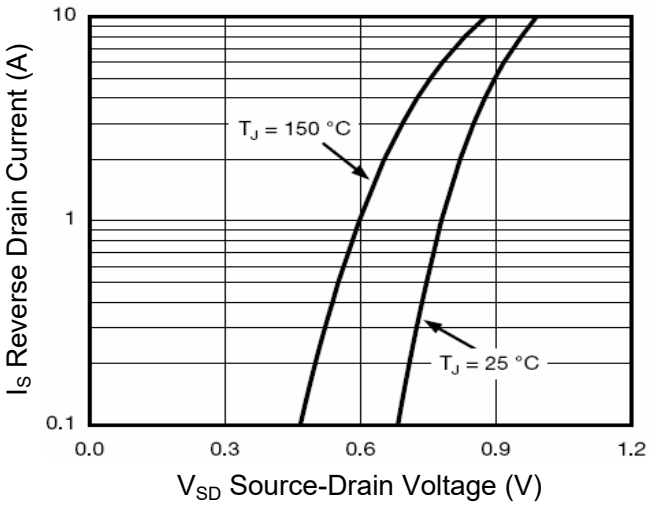




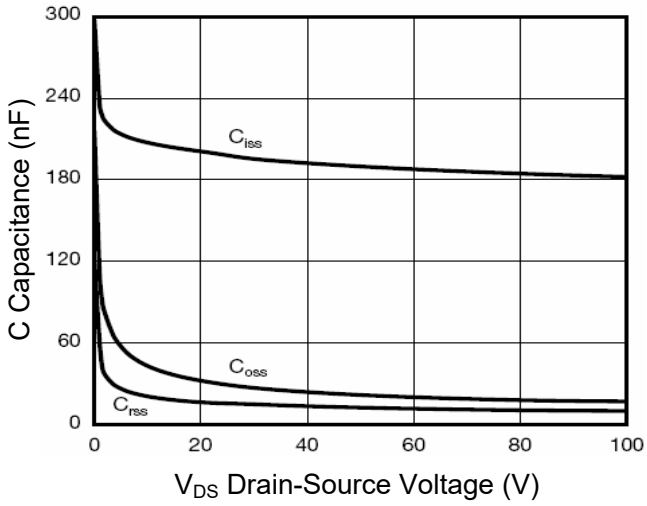


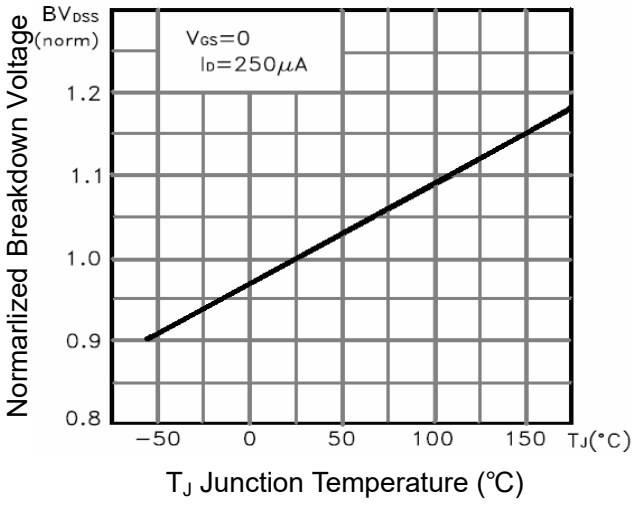


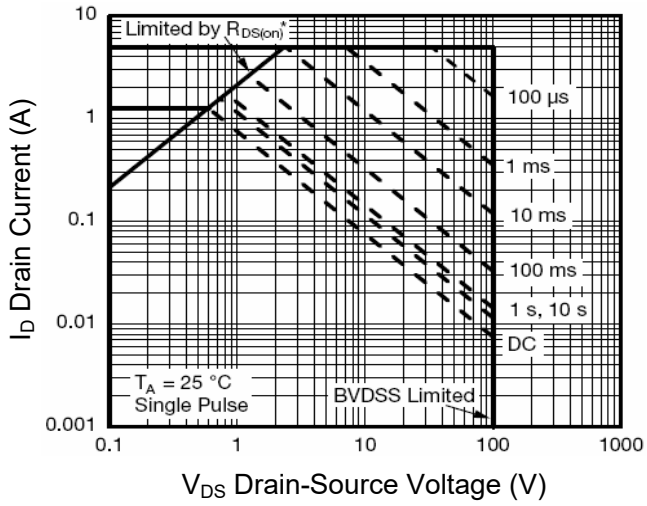


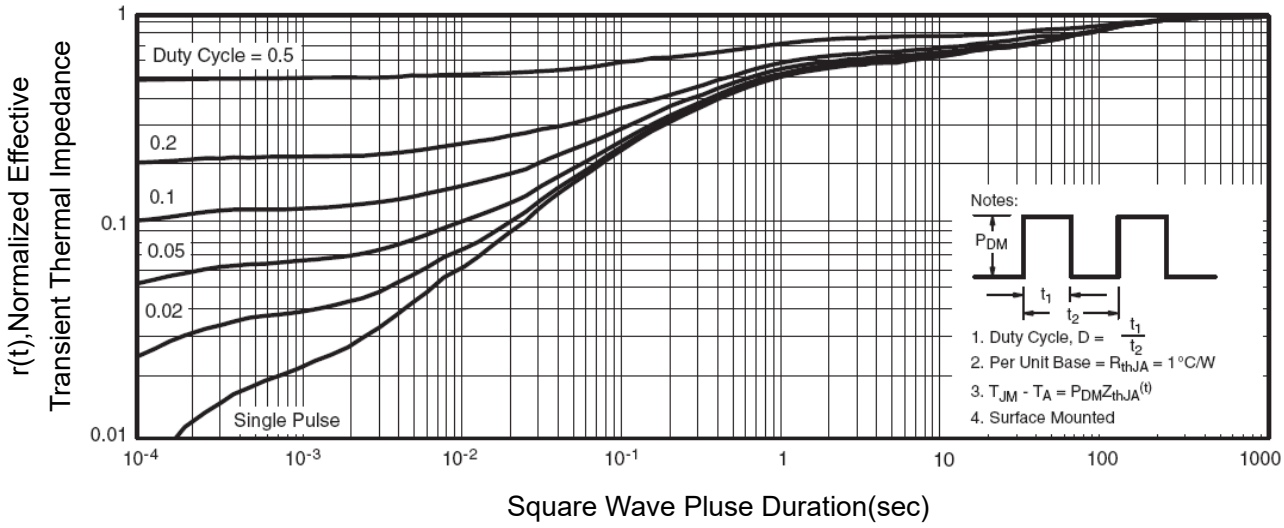


Typical Characteristics

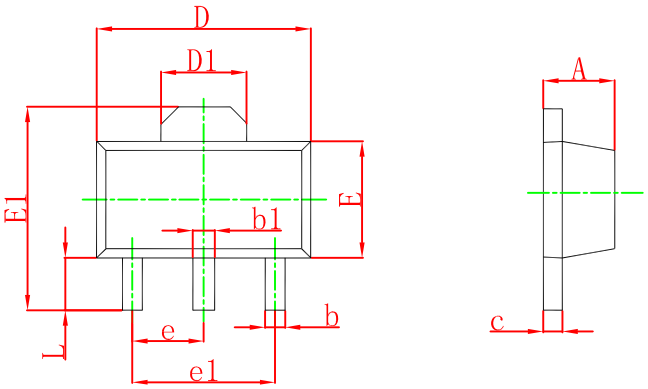






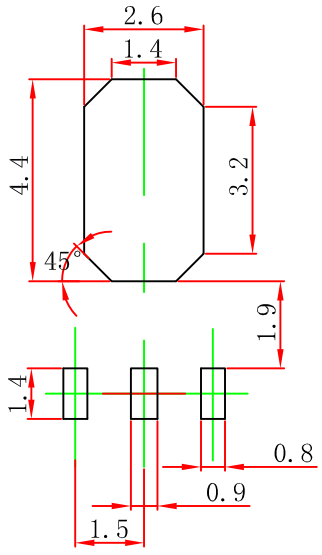


SOT 89 3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

SOT-89-3L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.