

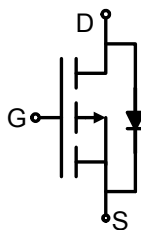
P-Channel Enhancement Mode MOSFET

FEATURES

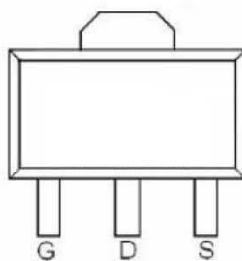
- ◆ $R_{DS(Typ.)} < 250 \text{ m}\Omega @ V_{GS} = -10 \text{ V}$
- ◆ $R_{DS(Typ.)} < 300 \text{ m}\Omega @ V_{GS} = -4.5 \text{ V}$
- ◆ Gross Die = 9600

APPLICATIONS

- ◆ Battery Charge
- ◆ Load Switching
- ◆ Power Converter



Schematic diagram



SOT-89-3L top view

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous @ $T_A = 25^\circ\text{C}$	I_D	-5	A
Drain Current-Pulsed @ $T_A = 25^\circ\text{C}$ ^{Note1}	I_{DM}	-15	A
Maximum Power Dissipation	P_D	2.1	W
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	60	$^\circ\text{C/W}$

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V , I _{DS} =-250μA	-100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} =0V , V _{DS} =-80V	-	-	-1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} =±20V , V _{DS} =0V	-	-	±100	nA
ON Characteristics						
Gate Threshold Voltage	V _{TH}	V _{DS} =V _{GS} , I _{DS} =-250μA	-1	-	-2.0	V
Drain-Source On-State Resistance	R _{DS}	V _{GS} =-10V , I _{DS} =-2A	-		250-	mΩ
		V _{GS} =-4.5V , I _{DS} =-2A	-		300-	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-50V V _{GS} =0V Freq.=1MHz	-	890	-	pF
Output Capacitance	C _{oss}		-	60	-	
Reverse Transfer Capacitance	C _{rss}		-	25	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DS} =-50V V _{GS} =-10V R _G =3Ω	-	12	-	ns
Rise Time	t _r		-	32	-	
Turn-Off Delay Time	t _{d(off)}		-	30	-	
Fall Time	t _f		-	10	-	
Total Gate Charge at 10V	Q _g	V _{DS} =-50V	-	24	-	nC
Gate to Source Gate Charge	Q _{gs}	V _{GS} =-10V	-	5	-	
Gate to Drain “Miller” Charge	Q _{gd}	I _{DS} =-5A	-	8	-	
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V , I _S =-1A	-0.4	-	-1.0	V

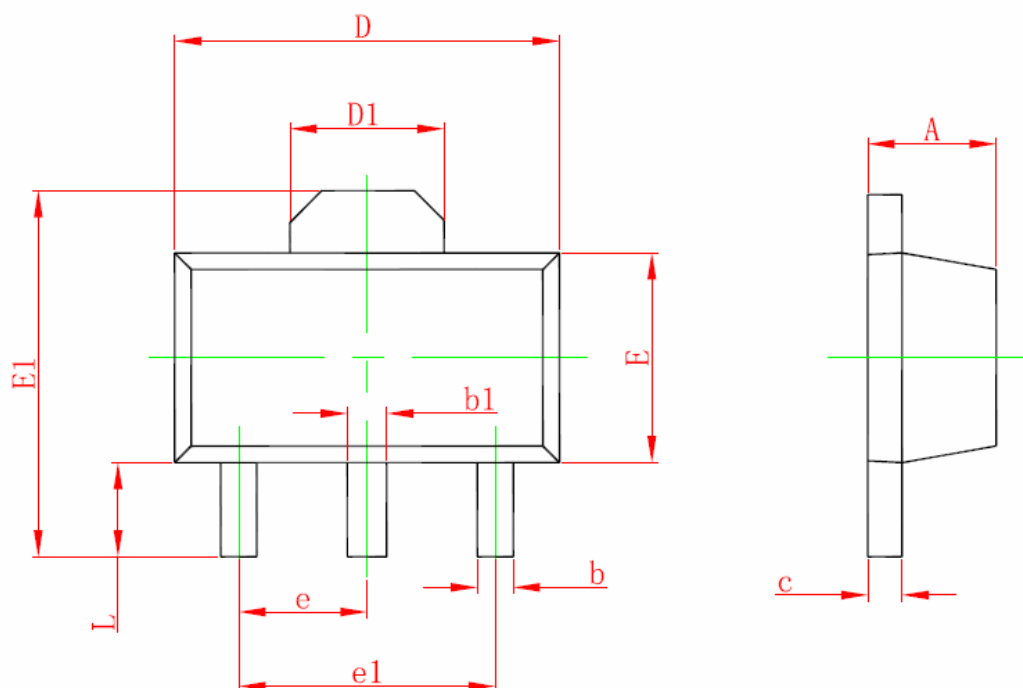
Notes:

1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

2. R_{θJA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.

R_{θJC} is guaranteed by design while R_{θCA} is determined by the user's board design. R_{θJA} shown below for single device operation on FR-4 in still air.

SOT-89-3L Package Information



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

Notes

1. All dimensions are in millimeters.
2. Tolerance $\pm 0.10\text{mm}$ (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.