

SOT-89 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=30V$
- $I_D=5.8A$
- $R_{DS(on)}@V_{GS}=10V < 27m\Omega$
- $R_{DS(on)}@V_{GS}=4.5V < 33m\Omega$
- Avalanche energy tested
- Fast Switching Speedze
- Improved dv/dt capability, high ruggedness

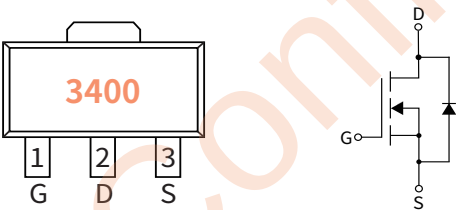
Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

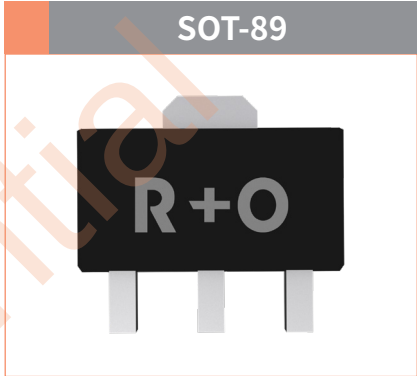
Mechanical Data

- Case: SOT-89
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Drain-source Voltage
30 V
Drain Current
5.8 Ampere



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-89	R1	0.045	1000	8000	48000	7"

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Drain-source Voltage	V_{DS}	V	30
Gate-source Voltage	V_{GS}	V	± 12
Drain Current	I_D	A	5.8
Pulsed Drain Current ⁽¹⁾	I_{DM}	A	23
Total Power Dissipation	P_D	W	1.4
Junction temperature	T_J	°C	-55 ~+150
Storage temperature	T_{stg}	°C	-55 ~+150
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	°C / W	90

● Static Parameter Characteristics (Tj=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	V	30	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	μA	—	—	1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.65	0.9	1.5
Static Drain-Source On-Resistance ⁽²⁾	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.8A$	m Ω	—	21	27
		$V_{GS}=4.5V, I_D=5A$		—	25	33
		$V_{GS}=2.5V, I_D=3A$		—	33	51

● Dynamic Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	pF	—	688	—
Output Capacitance	C_{oss}			—	85	—
Reverse Transfer Capacitance	C_{rss}			—	68	—

● Switching Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=15V, I_D=5.6A, R_{GEN}=3\Omega$	nS	—	5	—
Turn-on Rise Time	t_r		nS	—	28	—
Turn-off Delay Time	$t_{D(off)}$		nS	—	16	—
Turn-off fall Time	t_f		nS	—	26	—
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=5.6A, V_{GS}=10V$	nC	—	17	—
Gate-Source Charge	Q_{gs}		nC	—	2	—
Gate-Drain Charge	Q_{gd}		nC	—	2	—

● Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	$I_S=5.8A, V_{GS}=0V$	V	—	—	1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	5.8

Note :
(1)Repetitive Rating: Pulse width limited by maximum junction temperature.
(2)Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

● Package Outline Dimensions (SOT-89)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
B	1.35	1.83	0.053	0.072
C	3.75	4.25	0.148	0.167
D	2.29	2.60	0.090	0.102
E	2.95	3.05	0.116	0.120
a	0.35	0.48	0.014	0.019
b	0.40	0.56	0.016	0.022
L	0.80	1.20	0.031	0.047
G	0.35	0.44	0.014	0.017
H	1.40	1.60	0.055	0.063

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
c	0.80	1.00	0.032	0.04
d	1.30	1.50	0.052	0.060
e	0.70	0.90	0.028	0.036
J	1.80	2.00	0.072	0.080
K	1.40	1.60	0.056	0.064
X	2.50	2.70	0.100	0.108
X1	1.30	1.50	0.052	0.060
Y	4.30	4.50	0.172	0.180
Y1	3.10	3.30	0.124	0.132
θ	-	45°	-	45°