

SOT-23 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=20V$
- $I_D=6.5A$
- $R_{DS(on)}@V_{GS}=10V < 18m\Omega$
- $R_{DS(on)}@V_{GS}=4.5V < 22m\Omega$
- $R_{DS(on)}@V_{GS}=2.5V < 39m\Omega$
- Advanced trench technology
- Fast switching

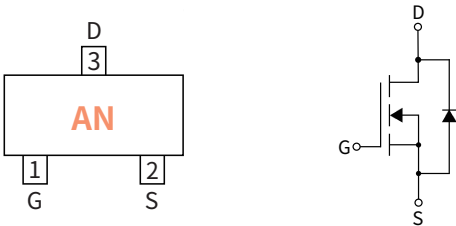
Applications

- Load switching
- Power management

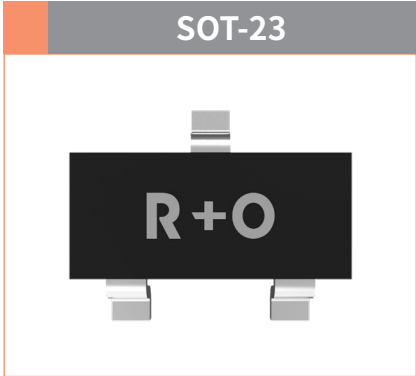
Mechanical Data

- Case: SOT-23
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
20 V
Drain Current
6.5 Ampere



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	180000	7"

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

PARAMETER		SYMBOL	UNIT	VALUE
Drain-source Voltage		V_{DS}	V	20
Gate-source Voltage		V_{GS}	V	± 10
Drain Current	$T_A=25^{\circ}C$ @ Steady State	I_D	A	6.5
Pulsed Drain Current		I_{DM}	A	27
Total Power Dissipation @ $T_A=25^{\circ}C$		P_D	mW	1400
Thermal Resistance Junction-to-Ambient @ Steady State		$R_{\theta JA}$	$^{\circ}C / W$	100
Junction and Storage Temperature Range		T_J, T_{STG}	$^{\circ}C$	-55 ~+150

● Static Parameter Characteristics (Ta=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	20	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	μA	—	—	1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.45	0.7	1.0
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=6.8A$	m Ω	—	14	18
		$V_{GS}=4.5V, I_D=5A$		—	18	22
		$V_{GS}=2.5V, I_D=4A$		—	22	39

● Dynamic Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=10V$ $V_{GS}=0V$ $f=1MHz$	pF	—	888	—
Output Capacitance	C_{oss}			—	150	—
Reverse Transfer Capacitance	C_{rss}			—	136	—

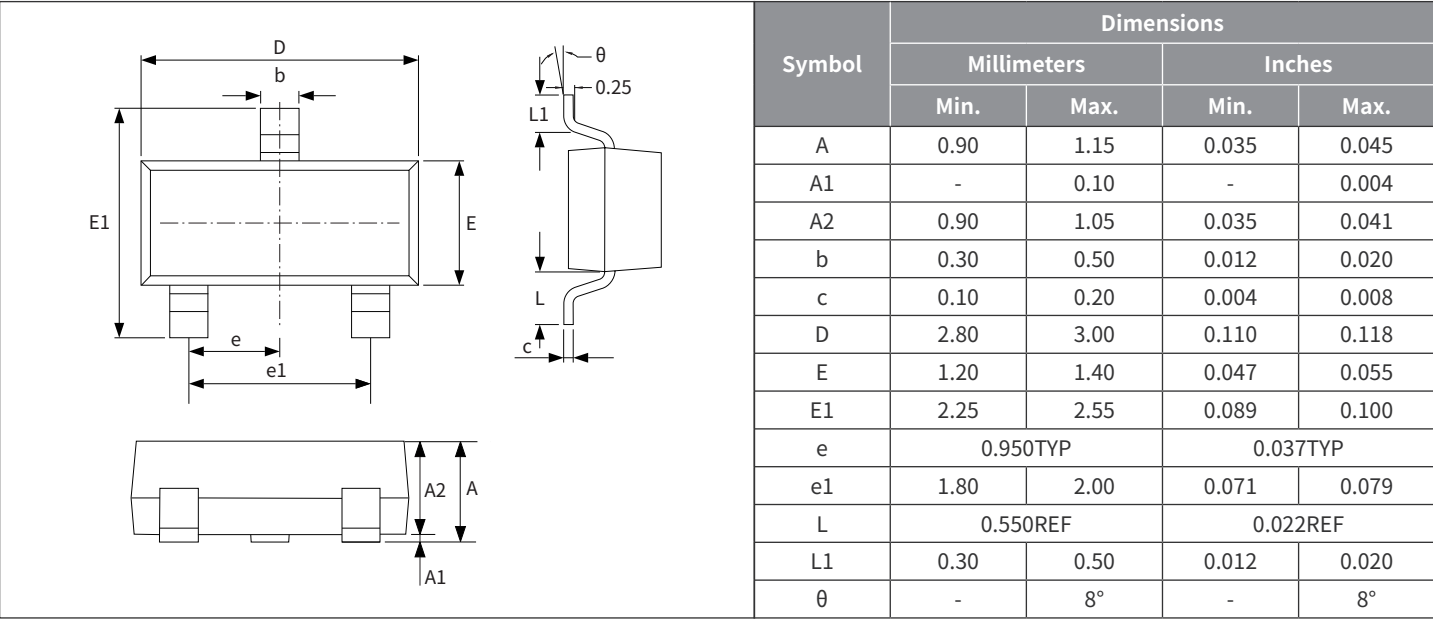
● Switching Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=4.5V$ $V_{DS}=10V$ $I_D=6.8A$	nC	—	11	—
Gate-Source Charge	Q_{gs}			—	2	—
Gate-Drain Charge	Q_{gd}			—	3	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V$ $V_{DS}=10V$ $R_G=3\Omega$ $I_D=6.8A$	ns	—	7	—
Turn-on Rise Time	t_r			—	46	—
Turn-off Delay Time	$t_{D(off)}$			—	30	—
Turn-off fall Time	t_f			—	52	—

● Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	$I_S=6.5A, V_{GS}=0V$	V	—	—	1.0
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	6.5

● Package Outline Dimensions (SOT-23)



● Suggested Pad Layout

