

SOT-23-6L Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=20V$
- $I_D=4.3A$
- $R_{DS(on)}@V_{GS}=4.0V < 30m\Omega$
- $R_{DS(on)}@V_{GS}=2.5V < 46m\Omega$
- Trench Power LV MOSFET technology
- Voltage controlled small signal switch
- Fast Switching Speed

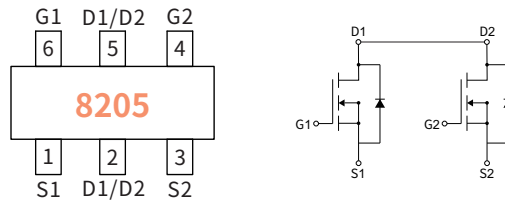
Applications

- Battery operated systems
- Load switch
- Uninterruptible power supply

Mechanical Data

- Case: SOT-23-6L
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Function Diagram



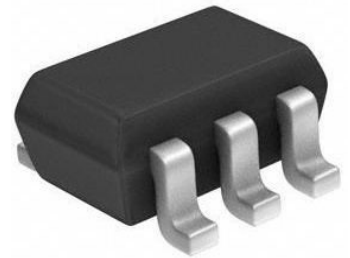
Drain-source Voltage

20 V

Drain Current

4.3 Ampere

SOT-23-6L



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	± 12
Drain Current ⁽¹⁾	I_D	A	4.3
Pulsed Drain Current ⁽²⁾	I_{DM}	A	21.5
Total Power Dissipation @ $T_A=25^\circ C$ ⁽¹⁾	P_D	W	1.25
Thermal Resistance Junction-to-Ambient @ Steady State ⁽¹⁾	$R_{\theta JA}$	$^\circ C / W$	100
Junction and Storage Temperature Range	T_J, T_{STG}	$^\circ C$	-55 ~ +150

Note :

(1) Surface Mounted on FR4 Board , $t \leq 10sec$.

(2) Pulse width limited by maximum junction temperature.

Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23-6L	R1	0.008	3000	45000	180000	7"

● **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}	$V_{GS}=\pm 12V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage ⁽¹⁾	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.45	—	1.0
Static Drain-Source On-Resistance ⁽¹⁾	$R_{DS(on)}$	$V_{GS}=4.0V, I_D=4.3A$	m Ω	—	—	30
		$V_{GS}=2.5V, I_D=3.4A$		—	—	46
Diode Forward Voltage	V_{SD}	$I_S=1.7A, V_{GS}=0V$	V	—	—	1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	1.7

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=8.0V$ $V_{GS}=0V$ $f=1.0MHz$	pF	—	550	—
Output Capacitance	C_{oss}			—	164	—
Reverse Transfer Capacitance	C_{rss}			—	138	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=4.5V$ $V_{DS}=10V$ $I_D=3.0A$	nC	—	6.2	—
Gate-Source Charge	Q_{gs}			—	1.8	—
Gate-Drain Charge	Q_{gd}			—	1.5	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GEN}=4.5V, V_{DD}=10V$ $I_D=1.0A$ $R_L=10\Omega, R_{GEN}=6.0\Omega$	ns	—	10	—
Turn-on Rise Time	t_r			—	8.2	—
Turn-off Delay Time	$t_{D(off)}$			—	25	—
Turn-off fall Time	t_f			—	6.7	—

Note:

(1) Pulse width 300 s, Duty Cycle $\leq 2\%$.

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

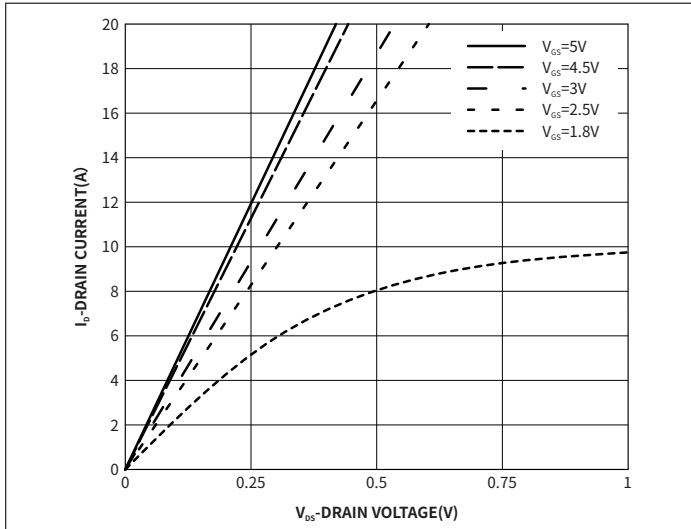


Fig.1 Output Characteristics

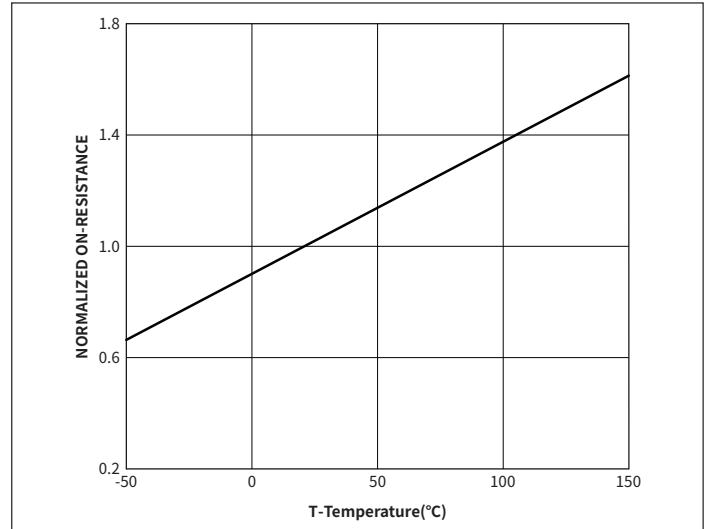


Fig.2 On-Resistance vs. Junction Temperature

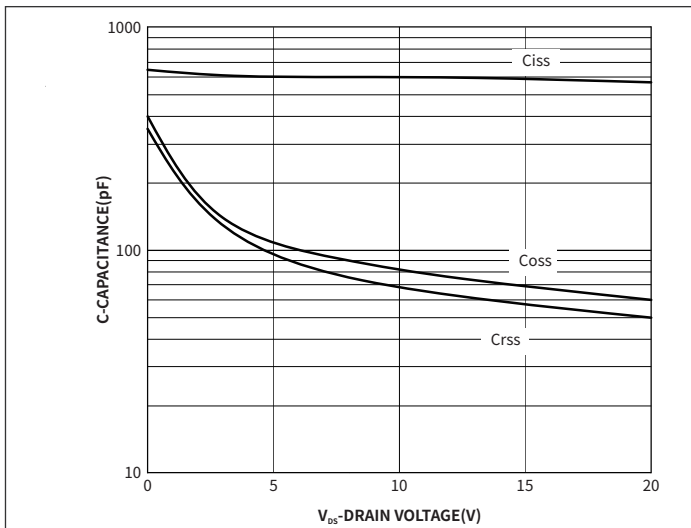


Fig.3 Capacitance Characteristics

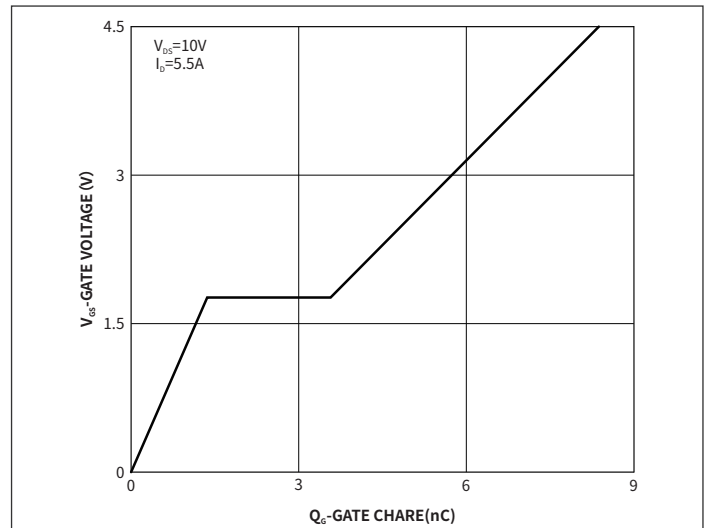


Fig.4 Gate Charge

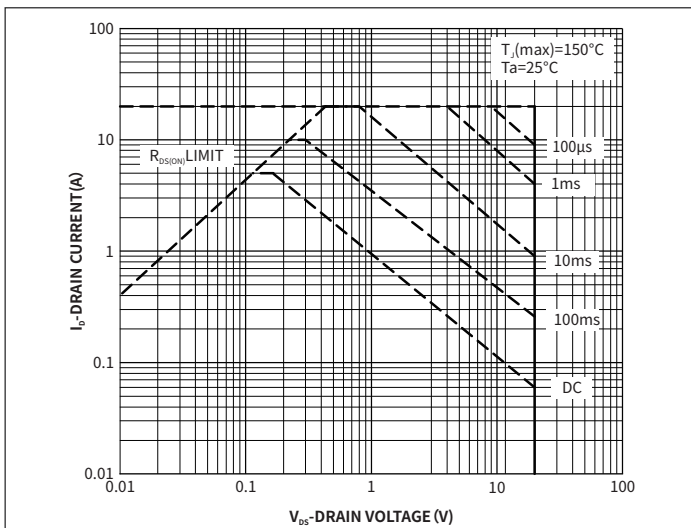


Fig.5 Safe Operation Area

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

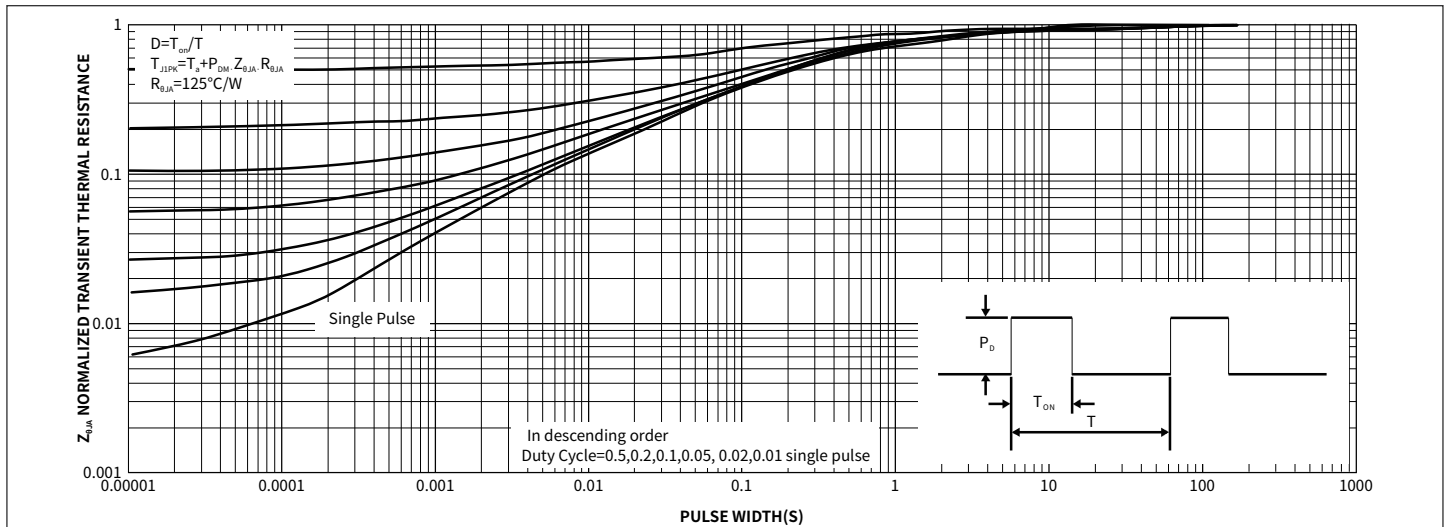
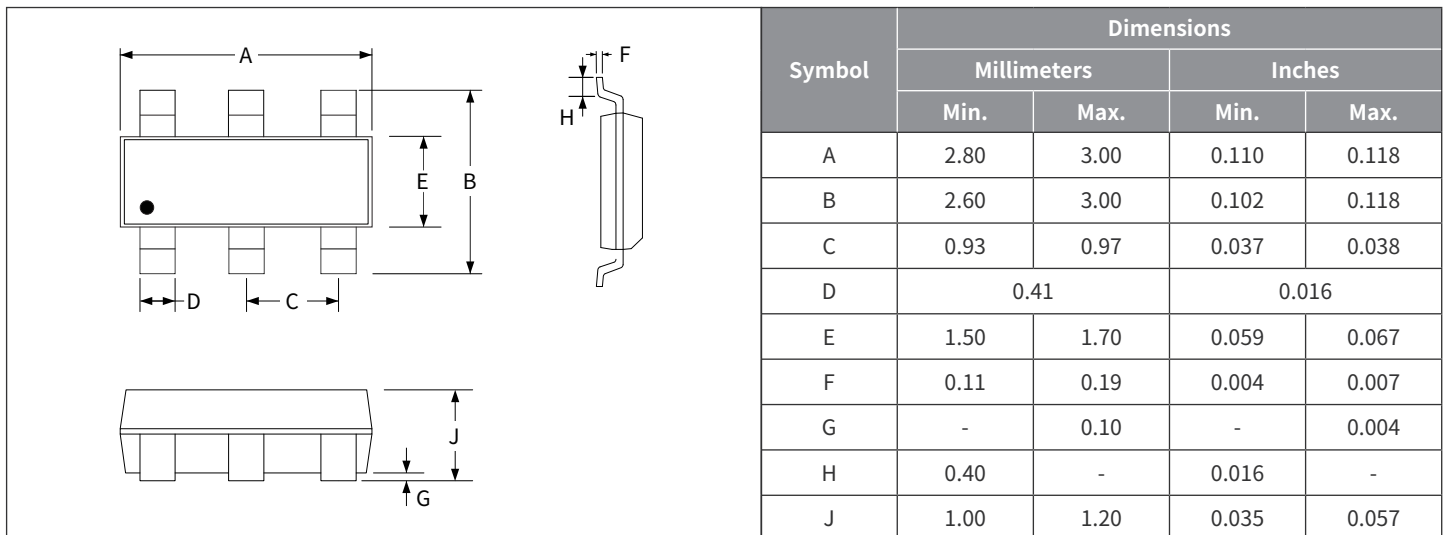


Fig.7 Normalized Maximum Transient Thermal Impedance

● Package Outline Dimensions (SOT-23-6L)



● Suggested Pad Layout

