

Features

- $V_{DSS}=30V$
- $I_D=3.6A$
- $R_{DS(on)}@V_{GS}=10V < 60m\Omega$
- $R_{DS(on)}@V_{GS}=4.5V < 75m\Omega$
- Trench Power LV MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching

Applications

- Battery protection
- Load switch
- 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

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	± 20
Drain Current	Ta=25°C	I_D	A	3.6
	Ta=70°C			2.9
Pulsed Drain Current ⁽¹⁾		I_{DM}	A	15
Total Power Dissipation	Ta=25°C	P_D	W	1
	Ta=70°C			0.6
Storage Temperature		T_{stg}	°C	-55 ~ +150
Junction temperature		T_j	°C	-55 ~ +150
Thermal Resistance Junction-to-Ambient ⁽²⁾		$R_{\theta J-A}$	°C / W	125

Note :

(1) Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

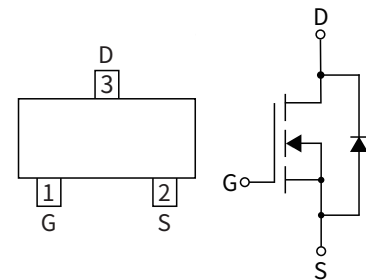
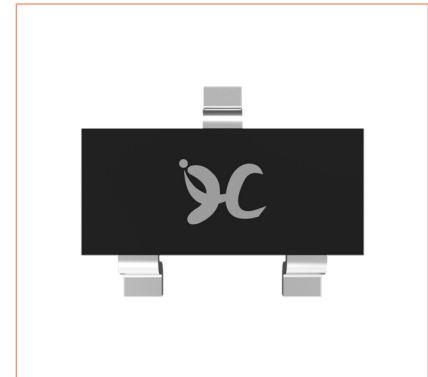
(2) $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins.

$R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	120000	7"

SOT-23



▶ 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	30	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	μA	—	—	1
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	1	1.5	2.2
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=3.6A$	m Ω	—	37	60
		$V_{GS}=4.5V, I_D=3A$		—	57	75
Diode Forward Voltage	V_{SD}	$I_S=-3.6A, V_{GS}=0V$	V	—	—	1.2

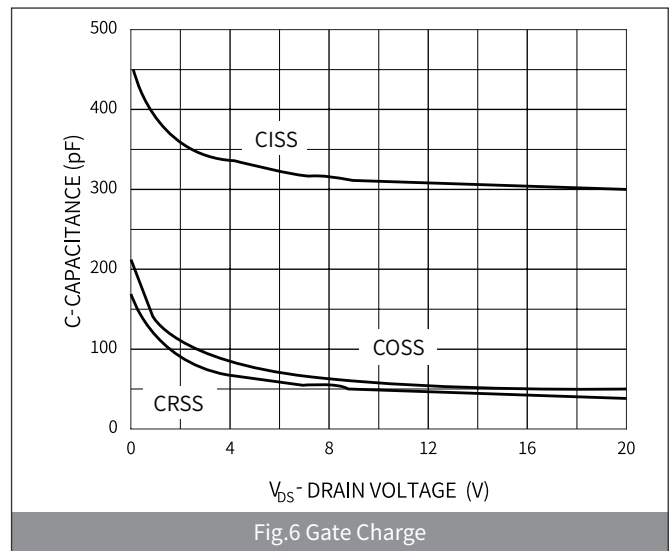
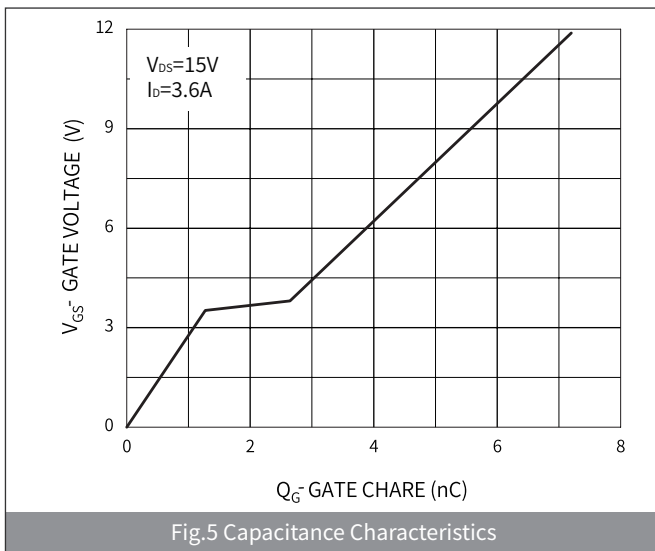
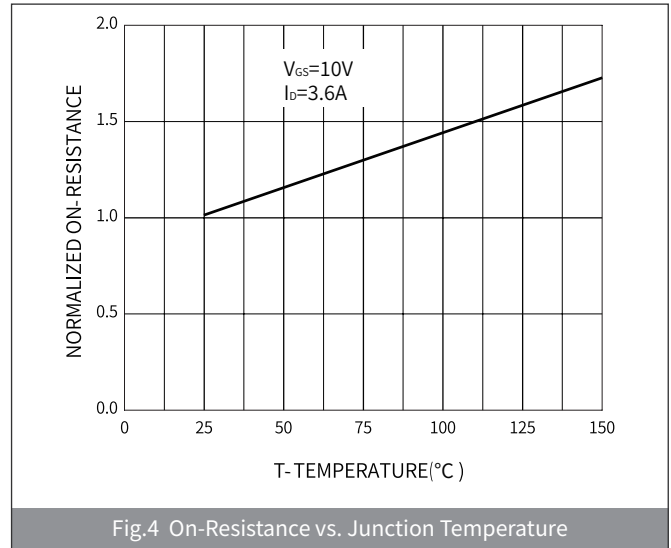
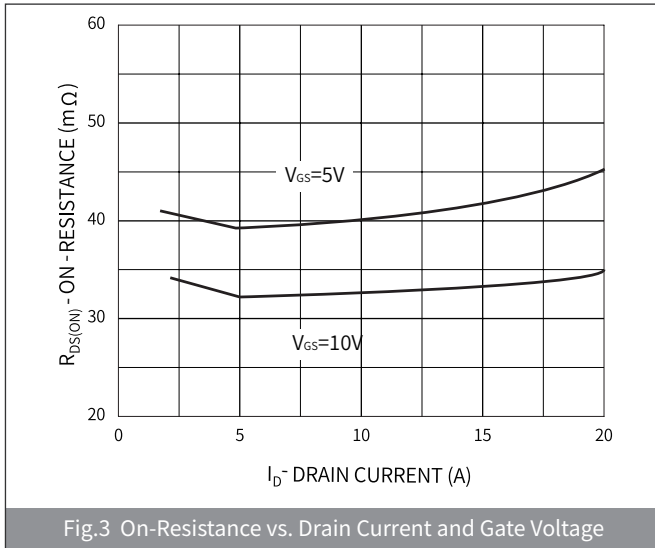
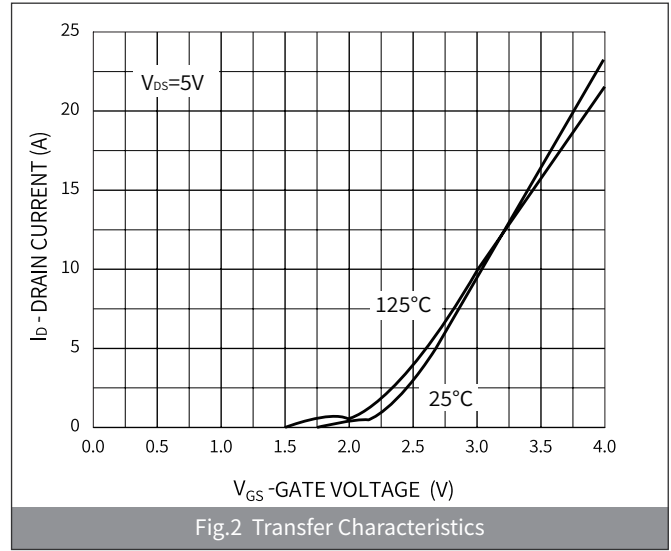
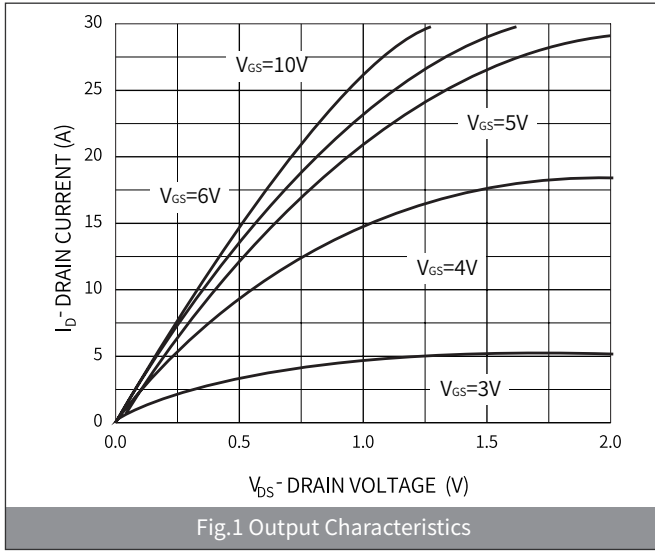
▶ Dynamic Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	pF	—	234	—
Output Capacitance	C_{oss}			—	47	—
Reverse Transfer Capacitance	C_{rss}			—	17	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=15V, I_D=3.6A$	nC	—	6.08	—
Gate-Source Charge	Q_{gs}			—	1.26	—
Gate-Drain Charge	Q_{gd}			—	1.32	—
Reverse Recovery Charge	Q_{rr}	$I_F=3.6A, di/dt=100A/us$	nC	—	1.66	—
Reverse Recovery Time	t_{rr}		ns	—	17.33	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DS}=15V, R_L=4.1\Omega$ $R_{GEN}=3\Omega$	ns	—	3.8	—
Turn-on Rise Time	t_r			—	23.2	—
Turn-off Delay Time	$t_{D(off)}$			—	7	—
Turn-off fall Time	t_f			—	18.6	—

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



Package Outline Dimensions (SOT-23)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.80	-	0.031	-
K	-	0.90	-	0.035
M	2.00	-	0.078	-
N	-	1.90	-	0.074