

Descriptions

This is N-CHANNEL MOSFET in a TO-252 Plastic Package.

Features

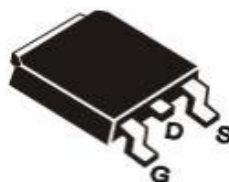
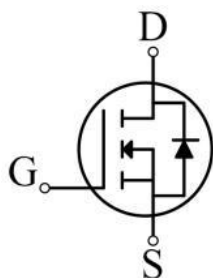
- Trench technology
- Low $R_{DS(on)}$
- Low switching loss
- 100% Avalanche tested
- Rohs compliant

Parameter	Value	Unit
V_{DS}	100	V
I_D	70	A
$R_{DS(ON)(MAX)}@V_{GS} = 10V$	9.5	mΩ
$R_{DS(ON)(MAX)}@V_{GS} = 4.5V$	13.5	mΩ

Applications

- Synchronous rectification
- Power switch
- Motor drivers

Equivalent Circuit & Pinning



TO-252

Absolute Maximum Ratings(Ta=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Drain-source Voltage	V_{DS}	100	V
gate-source Voltage	V_{GS}	±20	V
Continuous Drain Current Tc=25°C	I_D	70	A
Continuous Drain Current Tc=100°C	I_D	44	A
Pulsed Drain Current ^①	I_{DM}	280*	A
Total Power Dissipation Tc=25°C	P_{tot}	80	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ 150	°C
Single Pulse Avalanche Energy ^②	E_{AS}	183	mJ

Electrical Characteristics(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100			V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D=250\mu A$, Referenced to 25°C		0.59		V/°C
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.2	1.8	2.6	V
Drain-source Leakage Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V, T_J=25^\circ C$			1	μA
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=10A^{③}$		30.3		S

Electrical Characteristics(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Gate-body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 20A$		8.2	9.5	mΩ
		$V_{GS} = 4.5V, I_D = 10A$		10.5	13.5	
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 50V$ $F = 1\text{ MHz}$		1650		pF
Output Capacitance	C_{oss}			357		
Reverse Transfer Capacitance	C_{rss}			13.6		
Turn-On Delay Time	$T_{d(on)}$	$V_{DD} = 50V, I_D = 20A$ $V_{GS} = 10V, R_G = 3\Omega$		17		ns
Rise time	T_r			21		
Turn -Off Delay Time	$T_{d(off)}$			43		
Fall time	T_f			8.2		
Total Gate Charge	Q_g	$I_D = 30A, V_{DS} = 50V$ $V_{GS} = 10V^{③}$		29		nC
Gate-to-Source Charge	Q_{gs}			5.6		
Gate-to-Drain Charge	Q_{gd}			6.5		
Continuous Diode Forward Current	I_S				70	A
Diode Forward Voltage	V_{SD}	$T_J = 25^\circ C, I_F = 20A$ $V_{GS} = 0V^{③}$			1.2	V
Reverse Recovery Time	t_{rr}	$I_F = 20A$ $di/dt = 100A/\mu s^{③}$		44		ns
Reverse Recovery Charge	Q_{rr}			35		nC

Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	R_{thJC}	1.56	$^\circ C/W$
Thermal Resistance Junction-ambient	R_{thJA}	62	$^\circ C/W$

Note:

- ① Repetitive rating: Pulse width limited by maximum junction temperature
- ② Starting $T_J = 25^\circ C$, $V_{DD} = 50V$, $L = 0.5mH$, $V_{GS} = 10V$, $I_{AS} = 28A$
- ③ Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

Electrical Characteristic Curve

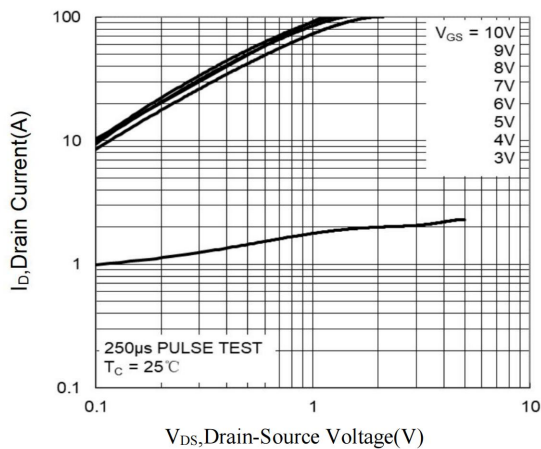


图 1 输出特性曲线

Fig.1 Output Characteristics

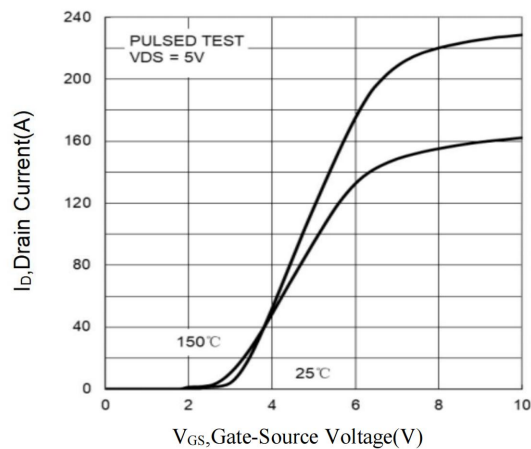


图 2 传输特性曲线

Fig.2 Transfer Characteristics

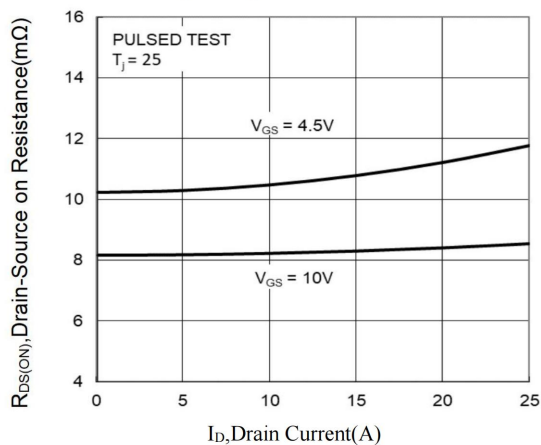


图 3 导通电阻与漏极电流和栅极电压曲线

Fig.3 On-Resistance Vs. Drain Current and Gate Voltage

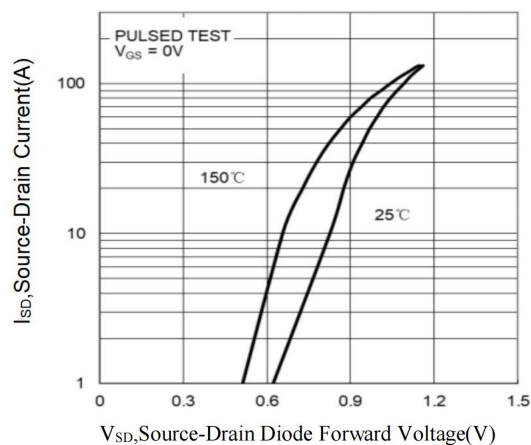


图 4 体二极管正向压降与源漏电流和温度曲线

Fig.4 Body Diode Forward Voltage Vs. Source-Drain Current and Temperature

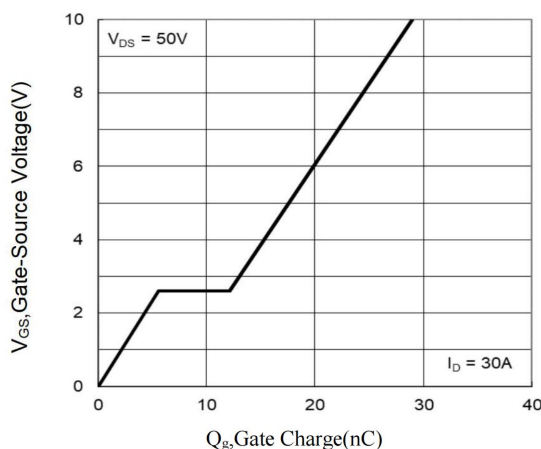


图 5 栅电荷曲线

Fig.5 Gate Charge Characteristics

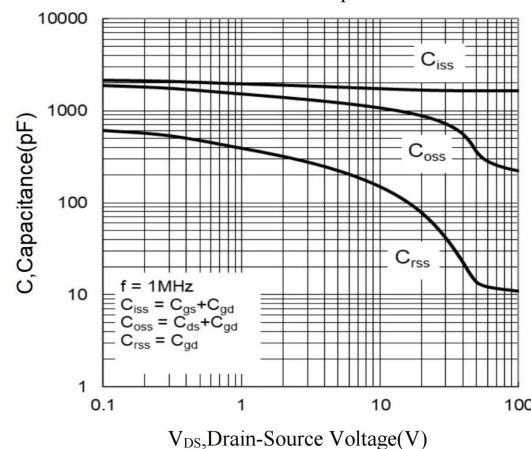


图 6 电容曲线

Fig.6 Capacitance Characteristics

Electrical Characteristic Curve

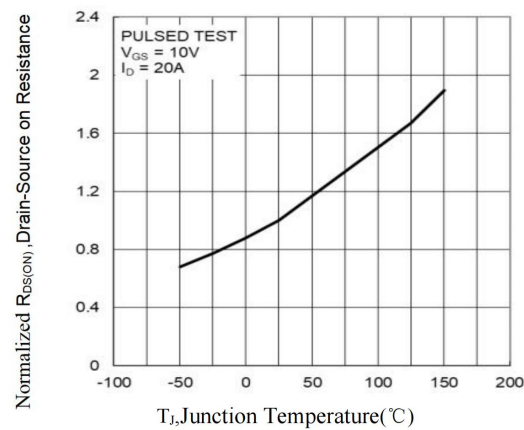


图 7 归一化导通电阻温升曲线
Fig.7 Normalized On Resistance Vs.
Junction Temperature

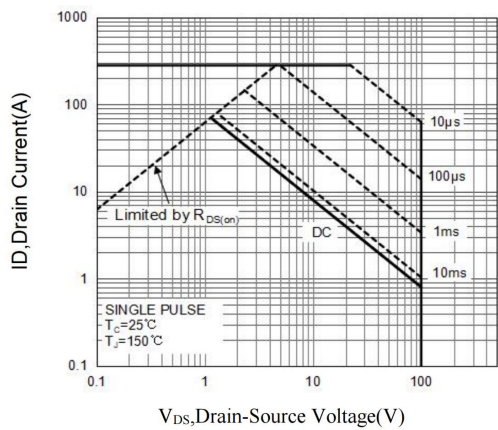


图 8 最大安全工作区域
Fig.8 Maximum Safe Operating Area

Marking Instructions

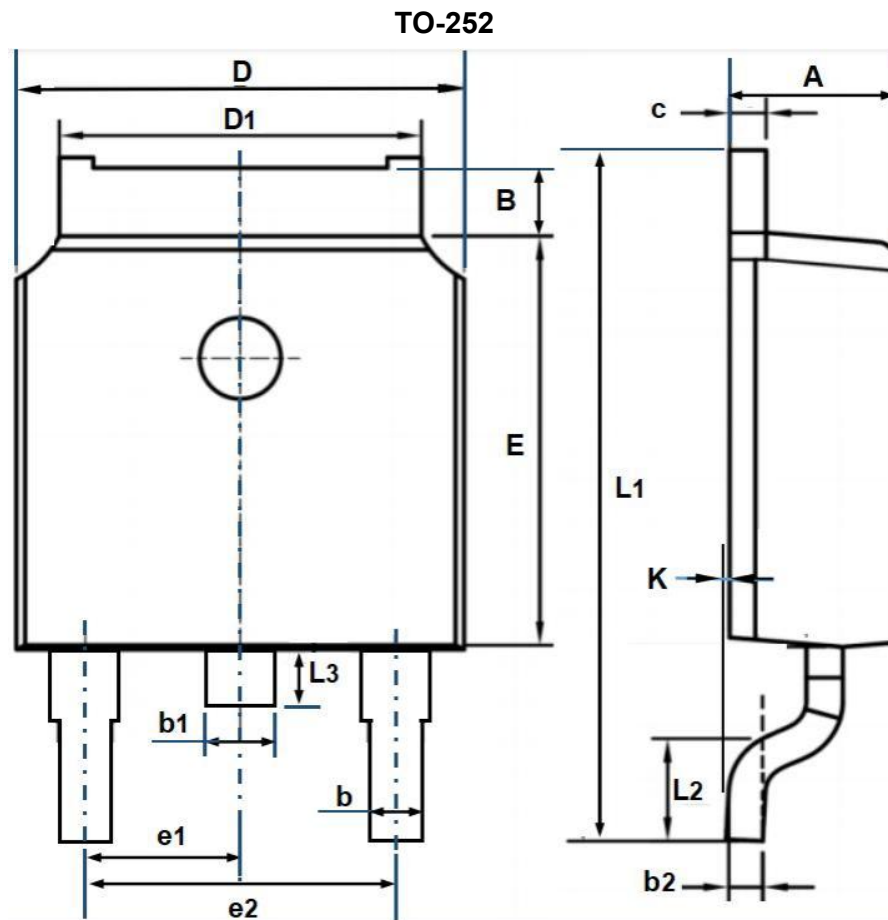


Note:
COT: Company Code
095N10: Product Type.
*****: *: Inner Code * : Year Code **: Week Code **: Lot Code.

Packaging SPEC

Part	Reel	Package	Marking	Packing method
CT095N10DP	2500PCS	TO-252	095N10	TAPE & REEL

Package Outline Dimensions



UNIT: mm

Symbol	Min	Max	Symbol	Min	Max
A	2.10	2.50	B	0.85	1.25
b	0.50	0.85	b1	0.90	1.15
b2	0.45	0.70	C	0.45	0.70
D	6.30	6.75	D1	5.10	5.50
E	5.30	6.30	e1	2.25	2.35
L1	9.20	10.60	e2	4.45	4.75
L2	0.90	1.75	L3	0.60	1.10
K	0.00	0.23			