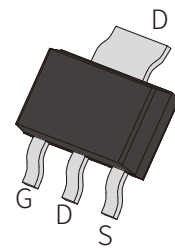


FEATURES

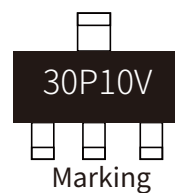
- | Surface-mounted package
- | Advanced trench cell design

APPLICATION

- | LCD TV appliances
- | LCDM appliances
- | High power inverter system



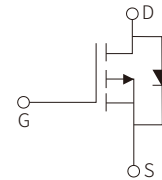
SOT-223



Marking

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage $T_c=25^{\circ}\text{C}$		V_{DS}	-100	V
Drain Current (Pulsed) $T_c=25^{\circ}\text{C}$ $V_{GS}=-10\text{V}$		I_{DM}^{***}	-76	A
Drain Current (DC)	$T_c=25^{\circ}\text{C}$ $V_{GS}=-10\text{V}$	I_D^*	-30	A
	$T_c=100^{\circ}\text{C}$ $V_{GS}=-10\text{V}$		-18	A
Gate-Source Voltage $T_c=25^{\circ}\text{C}$		V_{GS}	± 20	V
Drain power dissipation $T_c=25^{\circ}\text{C}$		P_{tot}	50	W
Continuous-Source Current $T_c=25^{\circ}\text{C}$		I_s	-30	A
Junction Temperature		T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 to 150	$^{\circ}\text{C}$
Single Pulsed Avalanche Energy $V_{DD}=-50\text{ V}$, $L=1.0\text{mH}$		E_{AS}^*	242	mJ
Thermal Resistance –Junction to Ambient		$R_{\theta JA}^*$	37	$^{\circ}\text{C/W}$
Thermal Resistance- Junction to Case		$R_{\theta JC}^*$	1.2	$^{\circ}\text{C/W}$

Notes:

- * Surface Mounted on 1 in² pad area, $t \leq 10\text{ sec}$
- ** Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_{DS}=-250\mu A$	-100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=-250\mu A$	-1.0	-1.5	-2.3	V
Drain Leakage Current	I_{DSS}	$V_{DS}=-80V, V_{GS}=0V$			-1	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
On-State Resistance	$R_{DS(on)}^a$	$V_{GS}=-10V, I_{DS}=-1A$		52	58	m Ω
		$V_{GS}=-4.5V, I_{DS}=-1A$		60	68	m Ω
Diode Characteristics						
Diode Forward Voltage	V_{SD}^a	$I_{SD}=-0.5A, V_{GS}=0V$		0.7	1.3	V
Reverse Recovery Time	t_{rr}	$I_{DS}=-10A$ $dI_{SD}/dt=100A/\mu s$		32		nS
Reverse Recovery Charge	Q_{rr}			49		nC
Dynamic Characteristics ^b						
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=-50V$, Frequency = 1 MHz		4507		pF
Output capacitance	C_{oss}			97		pF
Reverse transfer capacitance	C_{rss}			15		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=-50V, V_{GEN}=-10V$ $R_G=4.5\Omega, R_L=5\Omega$, $I_{DS}=-10A$		49		nS
Turn-on Rise Time	t_r			71		nS
Turn-Off Delay Time	$t_{d(off)}$			555		nS
Turn-Off Fall Time	t_f			187		nS
Gate Charge Characteristics ^b						
Total Gate Charge	Q_g	$V_{DS}=-50V, V_{GS}=-10V, I_{DS}=-10A$		73		nC
Gate-Source Charge	Q_{gs}			17		nC
Gate-Drain Charge	Q_{gd}			9.1		nC

Notes:

a : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

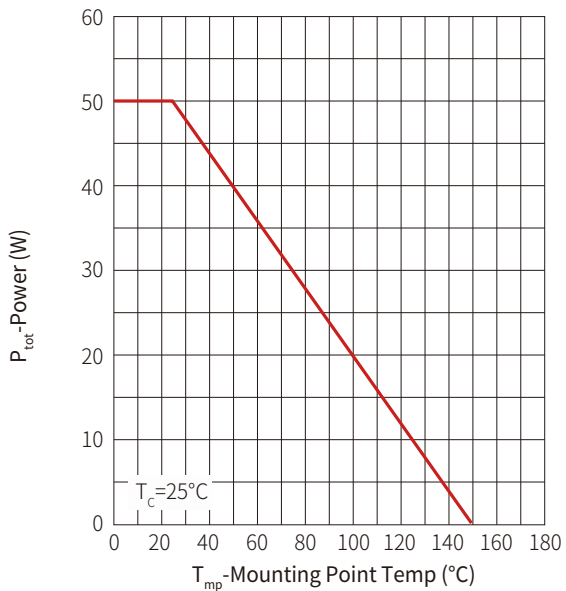


Figure2: Current Capability

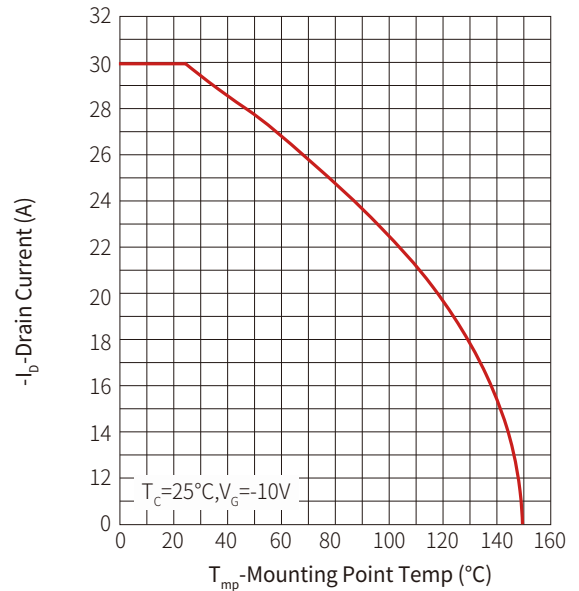


Figure3: Safe operating Area

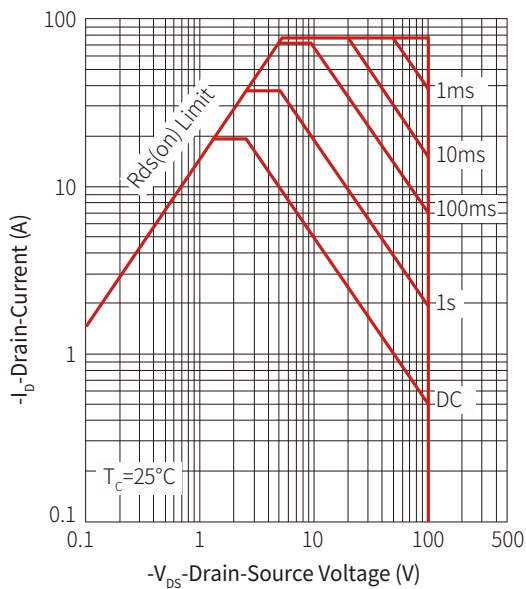
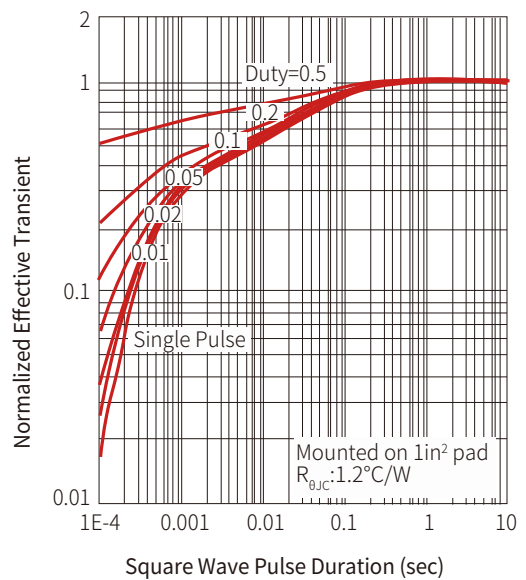


Figure 4: Transient Thermal Impedance



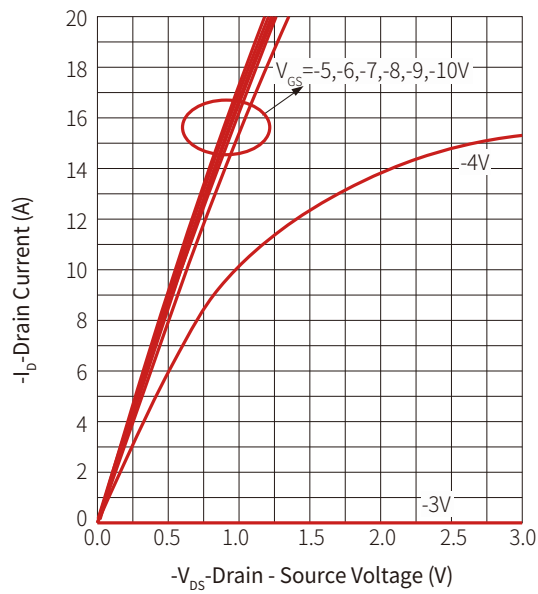
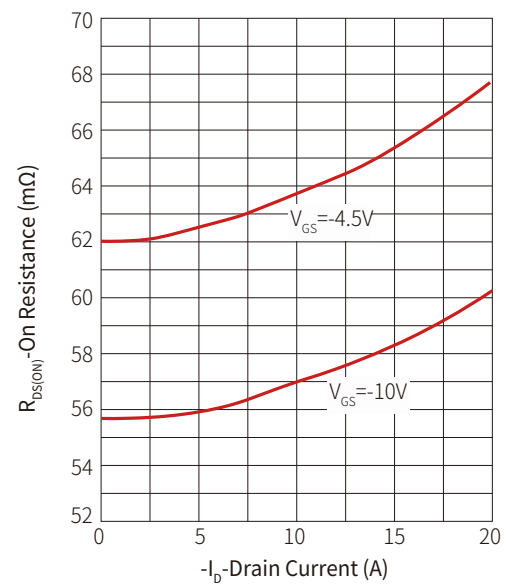
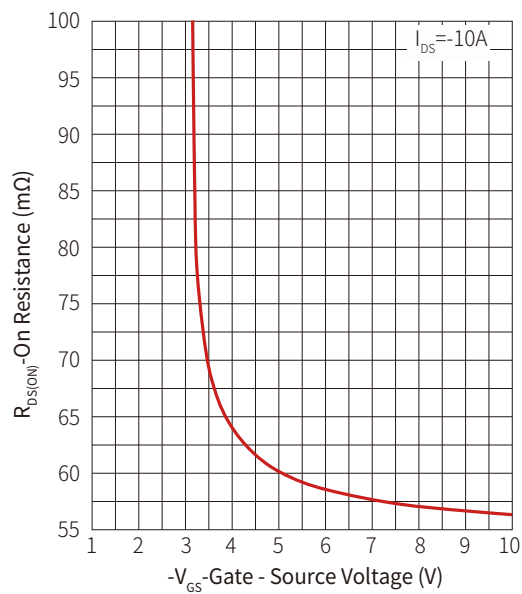
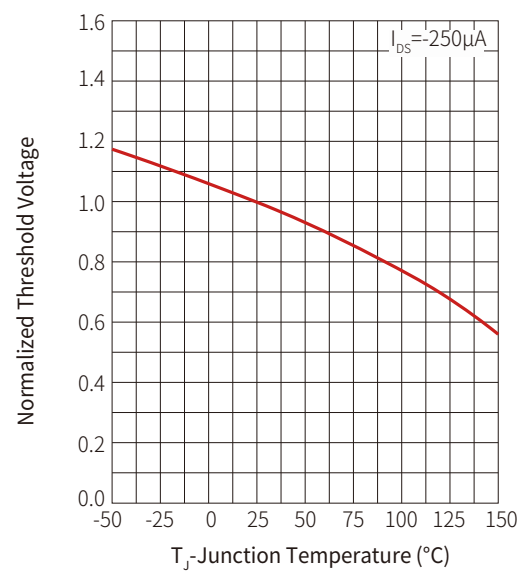
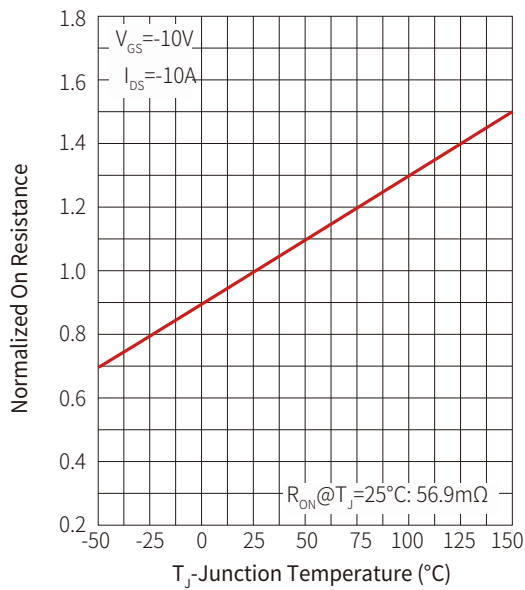
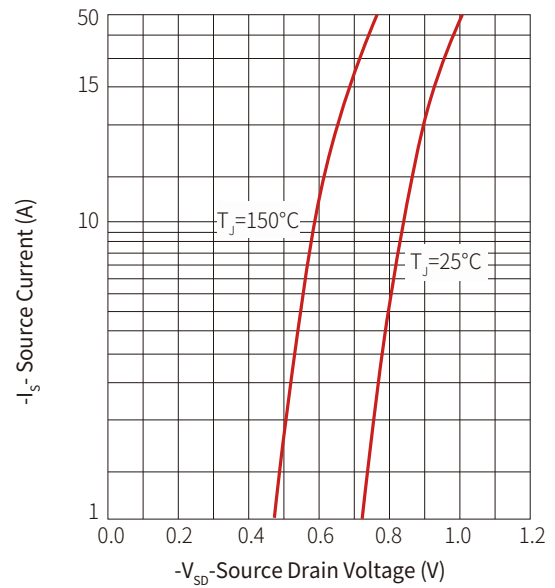
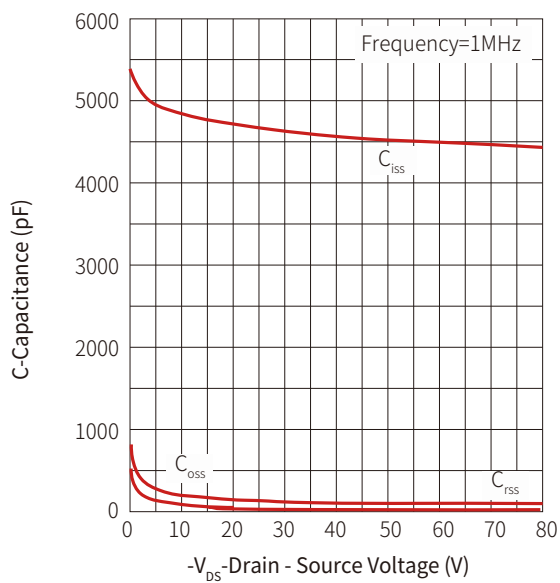
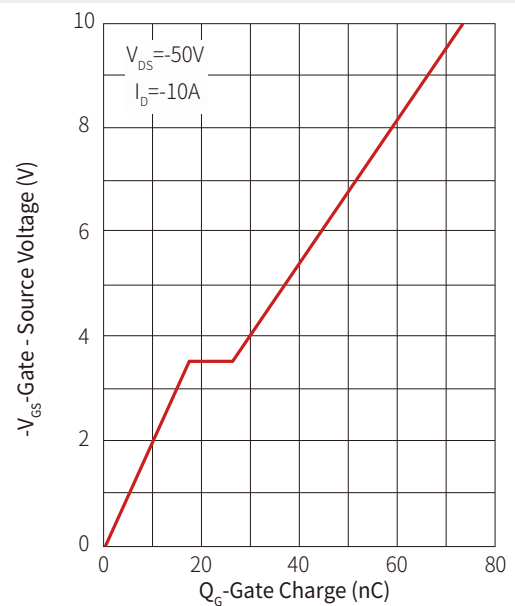
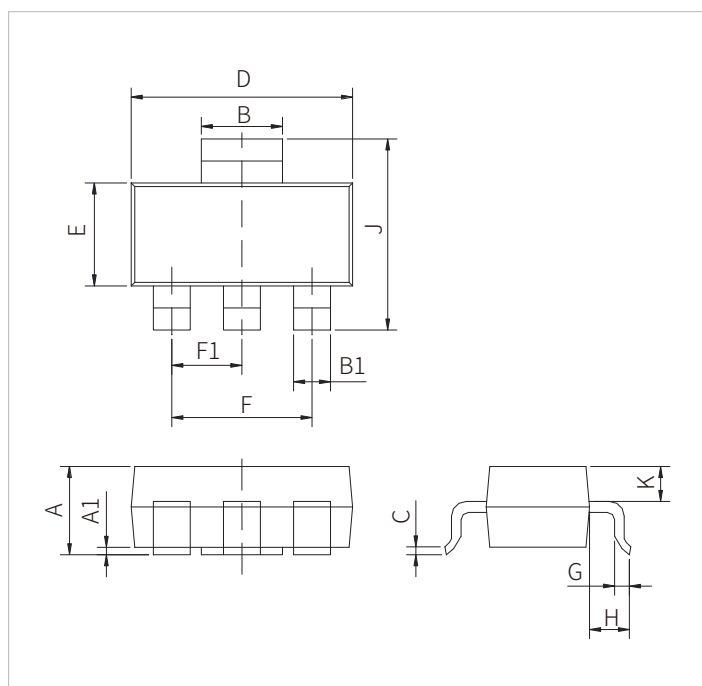
**Figure 5: Output Characteristics****Figure 6: On Resistance****Figure 7: Transfer Characteristics****Figure 8: Normalized Threshold Voltage**

Figure 9: Normalized On Resistance

Figure 10: Diode Forward Current

Figure 11: Capacitance

Figure 12: Gate Charge


SOT-223 PACKAGE DIMENSIONS



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.50		1.80	0.059		0.071
A1	0.01		0.06	0.001		0.004
B	2.90		3.10	0.118		0.122
B1	0.60		0.80	0.048		0.052
C	0.22		0.32	0.009		0.013
D	6.30		6.70	0.248		0.264
E	3.30		3.70	0.130		0.146
F		4.60			0.181	
F1		2.30			0.091	
G	0.70		1.10	0.028		0.043
H	1.50		2.00	0.059		0.079
J	6.70		7.30	0.264		0.287
K		0.90			0.035	

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SPM30P10V	SOT-223	2500PCS	7"

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