

FEATURES

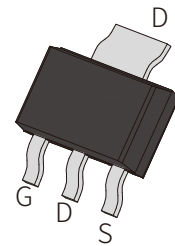
- | Surface-mounted package
- | Advanced trench cell design

APPLICATION

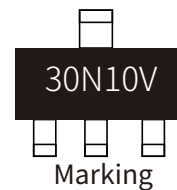
- | MB and NB
- | Half – bridge Drivers
- | Motor drivers

APPROVALS

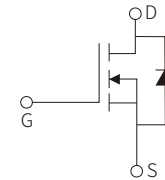
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003



SOT-223



Marking



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}^{***}	80	A
Drain Current (DC) $T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	I_D^*	31	A
Gate-Source Voltage $T_c=25^\circ\text{C}$	V_{GS}	± 20	V
Total Power Dissipation $T_c=25^\circ\text{C}$	P_{tot}	10.4	W
Junction Temperature	T_J	-55 to 150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^\circ\text{C}$
Thermal Resistance –Junction to Ambient	$R_{\theta JA}^*$	70	$^\circ\text{C}/\text{W}$
Thermal Resistance- Junction to Case	$R_{\theta JC}^*$	12.0	$^\circ\text{C}/\text{W}$

Notes:

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

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA	1.0		1.8	V
Drain Leakage Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
On-State Resistance	R _{DS(on)} ^a	V _{GS} =10V, I _{DS} =20A		16	18	mΩ
		V _{GS} =4.5V, I _{DS} =10A		23	25	mΩ
Diode Characteristics						
Diode Forward Voltage	V _{SD} ^a	I _{SD} =20A, V _{GS} =0V			1.3	V
Reverse Recovery Time	t _{rr}	I _{DS} =20A, V _{GS} =0V dI _{SD} /dt=100A/μs		24		nS
Reverse Recovery Charge	Q _{rr}			125		nC
Dynamic Characteristics^b						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =50V, Frequency = 1 MHz		1230		pF
Output capacitance	C _{oss}			256		pF
Reverse transfer capacitance	C _{rss}			2.8		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =50V, V _{GEN} =10V R _G =4.5Ω, R _L =2.5Ω, I _{DS} =20A		8.4		nS
Turn-on Rise Time	t _r			6.3		nS
Turn-Off Delay Time	t _{d(off)}			24		nS
Turn-Off Fall Time	t _f			6		nS
Gate Charge Characteristics^b						
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V, I _{DS} =20A		26		nC
Gate-Source Charge	Q _{gs}			6.1		nC
Gate-Drain Charge	Q _{gd}			4.8		nC

Notes:

a : Pulse test ; pulse width ≤ 300μs, duty cycle ≤ 2 %

b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

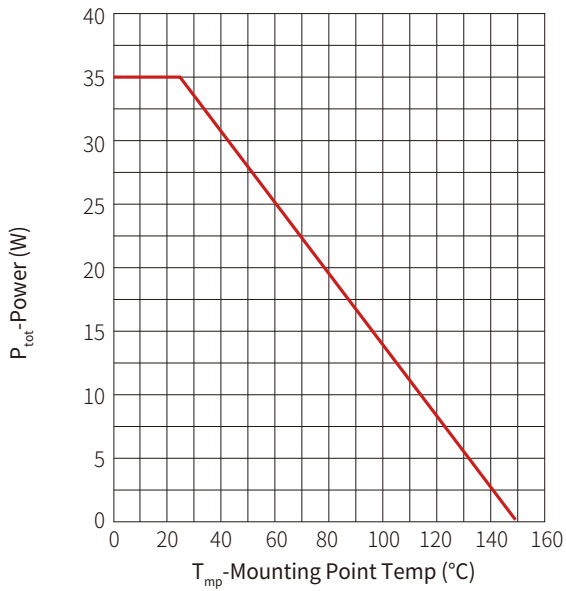


Figure2: Current Capability

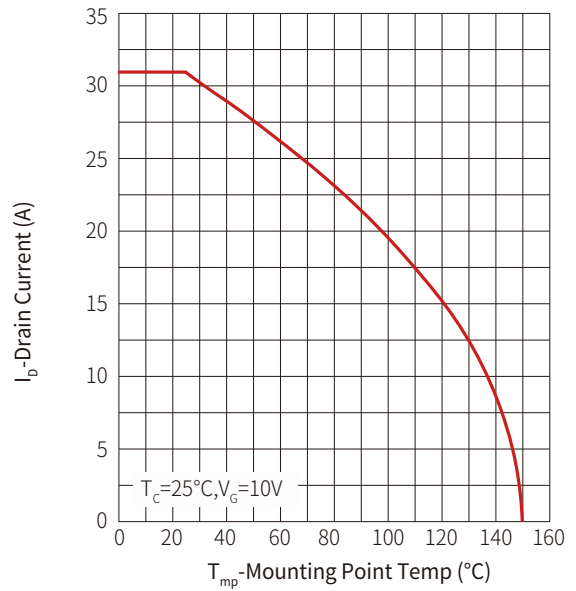


Figure3: Safe operating Area

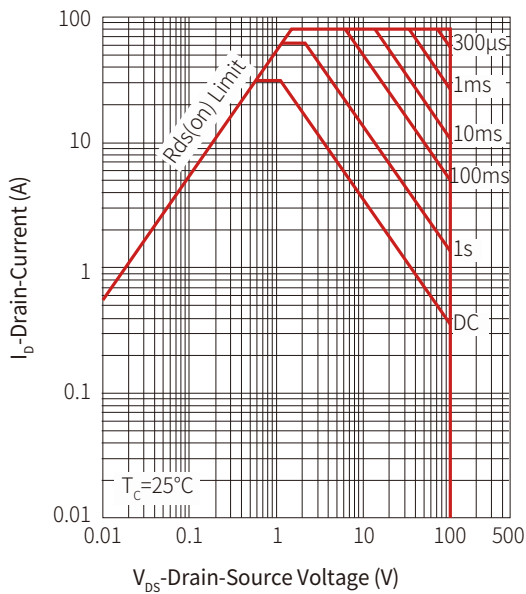


Figure 4: Transient Thermal Impedance

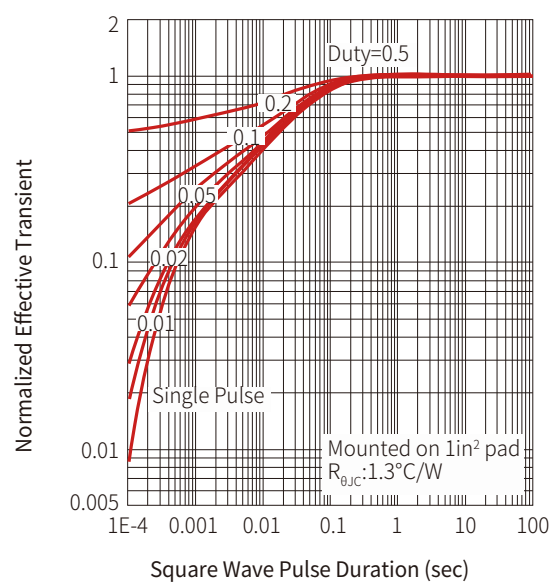


Figure 5: Output Characteristics

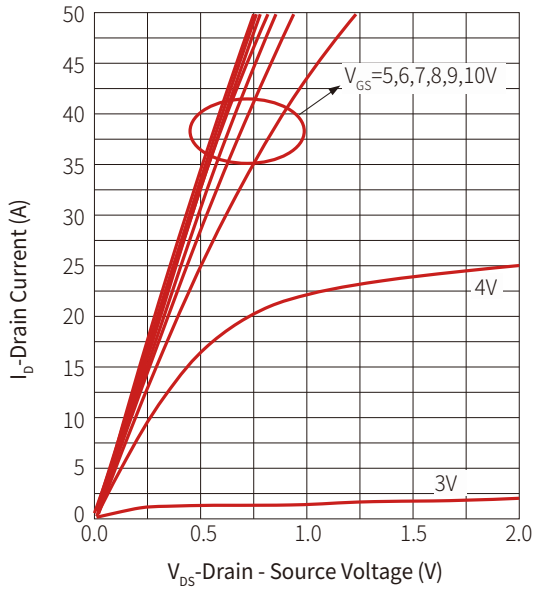


Figure 6: On Resistance

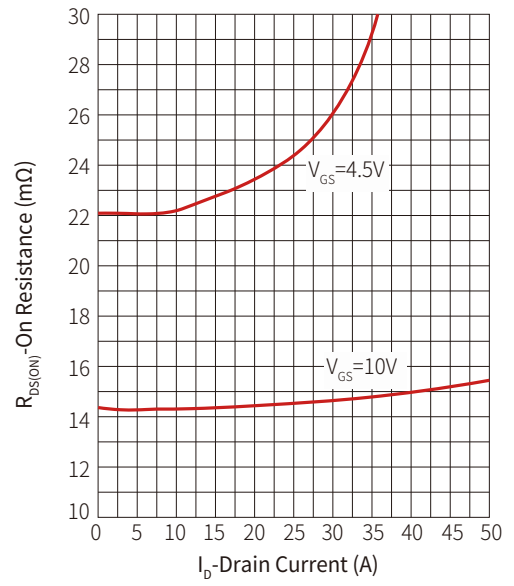


Figure 7: Transfer Characteristics

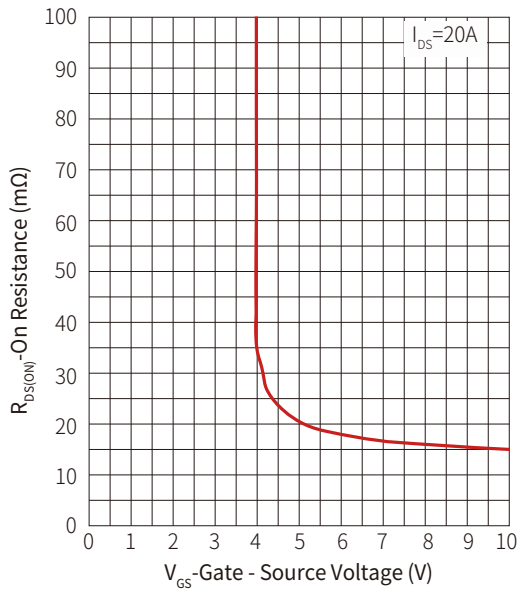


Figure 8: Normalized Threshold Voltage

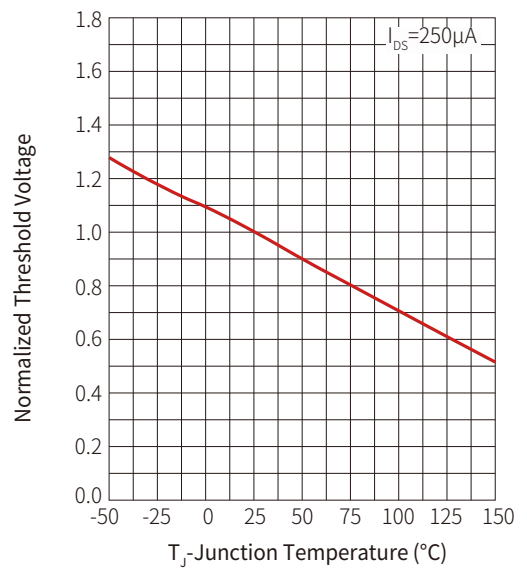


Figure 9: Normalized On Resistance

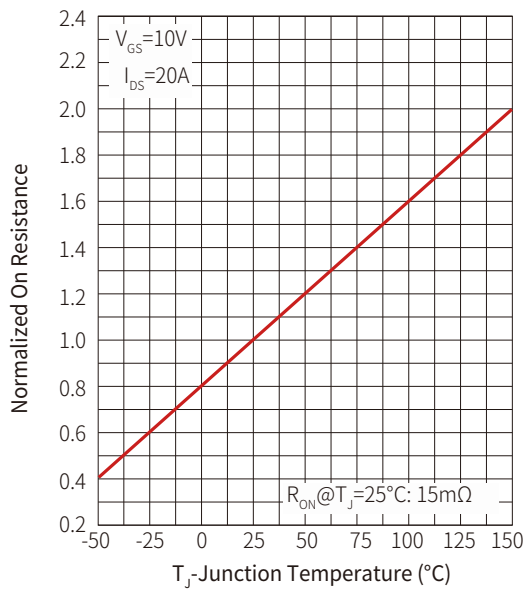


Figure 10: Diode Forward Current

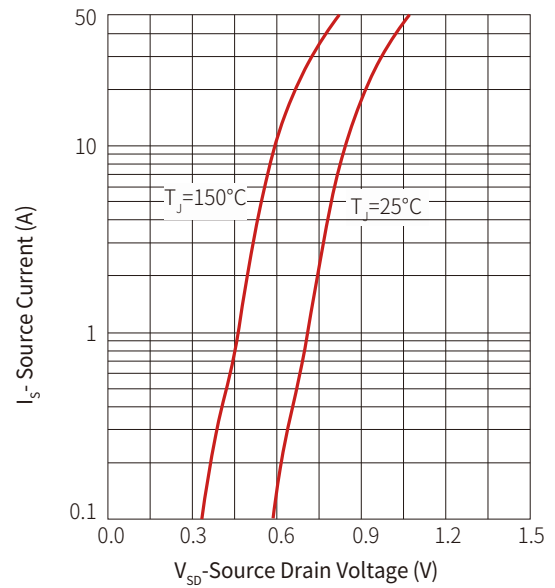


Figure 11: Capacitance

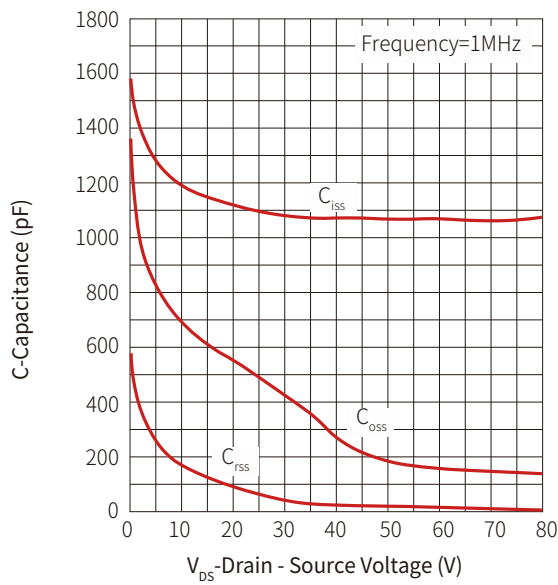
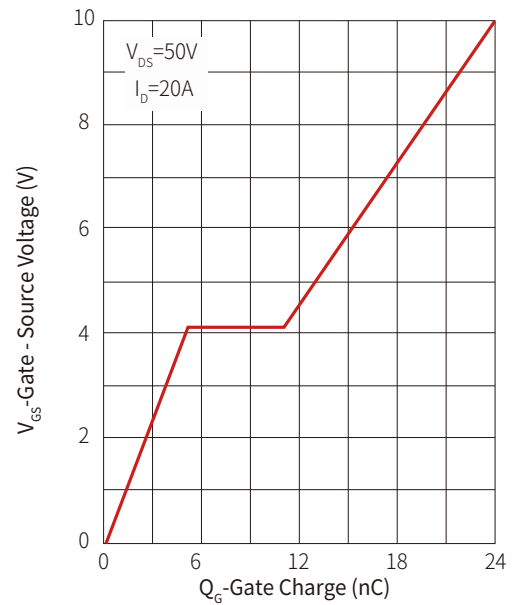
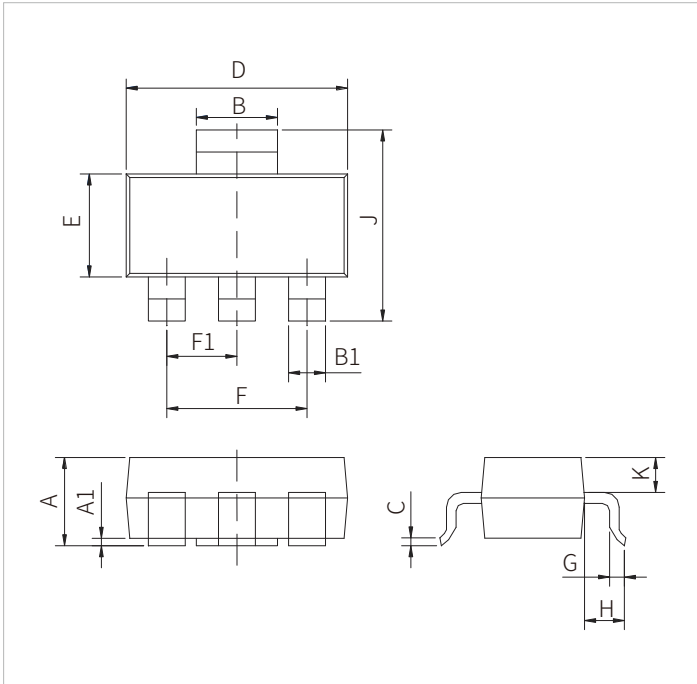


Figure 12: Gate Charge



SOT-223 PACKAGE DIMENSIONS



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.50		1.60	0.059		0.065
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
SNM30N10V	SOT-223	2500PCS	7"

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