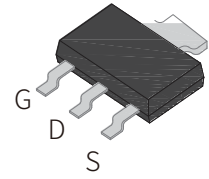


FEATURES

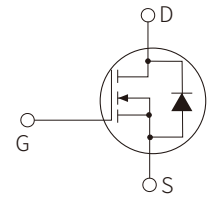
- Surface-mounted package
- Low Thermal Resistance



SOT-89

APPLICATION

- Motor drivers
- DC - DC Converter



Schematic Symbol

APPROVALS

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

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}^{***}	44	A
Drain Current (DC)	I_D^*	15	A
		7.2	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}^*	20.8	W
Diode Forward Current $T_c=25^\circ\text{C}$	I_S	15	A
Junction Temperature	T_J	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}^*	40.5	mJ
Thermal Resistance – Junction to Ambient	$R_{\theta JA}^*$	62.5	$^\circ\text{C/W}$
Thermal Resistance- Junction to Case	$R_{\theta JC}^*$	6	$^\circ\text{C/W}$

Notes:

* Surface Mounted on 1 in² pad area, $t \leq 10$ sec

** Pulse width $\leq 30\mu\text{s}$, duty cycle $\leq 2\%$

*** 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 _D =250μA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _{DS} =250μA	1		2	V
Drain Leakage Current	I _{DSS}	V _{DS} =80V,V _{GS} =0V			1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V			±100	nA
Drain-Source On-State Resistance	R _{DS(on)} ^a	V _{GS} =10V,I _D =10A			95	mΩ
		V _{GS} =4.5V,I _D =5A			120	mΩ
Diode Characteristics						
Diode Forward Voltage	V _{SD} ^a	I _{SD} =10A,V _{GS} =0V			1.3	V
Reverse Recovery Time	t _{rr}	I _{SD} =10A dI _{SD} /dt=100A/μs		21		nS
Reverse Recovery Charge	Q _{rr}			24		nC
Diode Characteristics ^b						
Input capacitance	C _{iss}	V _{GS} =0V,V _{DS} =50V, Frequency = 1 MHz		1662		pF
Output capacitance	C _{oss}			34		pF
Reverse transfer capacitance	C _{rss}			34		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =50V,V _{GEN} =10V R _G = 4.5Ω, R _L =5Ω, I _D =10A		6.1		nS
Turn-on Rise Time	t _r			9.5		nS
Turn-Off Delay Time	t _{d(off)}			31		nS
Turn-Off Fall Time	t _f			14		nS
Gate Charge Characteristics ^b						
Total Gate Charge	Q _g	V _{DS} =10V,V _{GS} =50V,I _{DS} =10A		28		nC
Gate-Source Charge	Q _{gs}			6.9		nC
Gate-Drain Charge	Q _{gd}			3.6		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

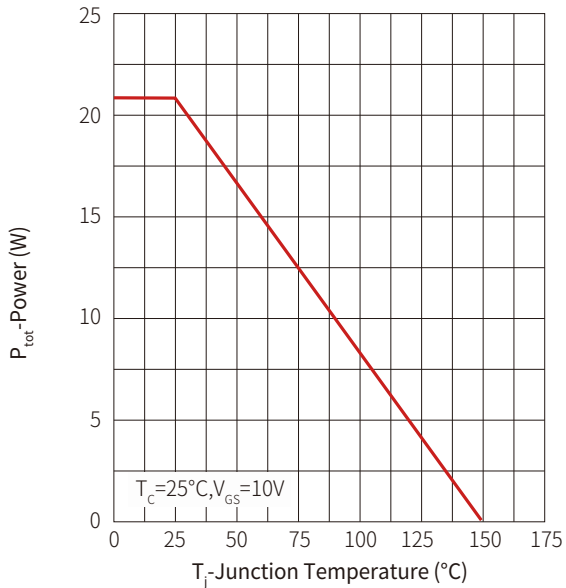


Figure2: Current Capability

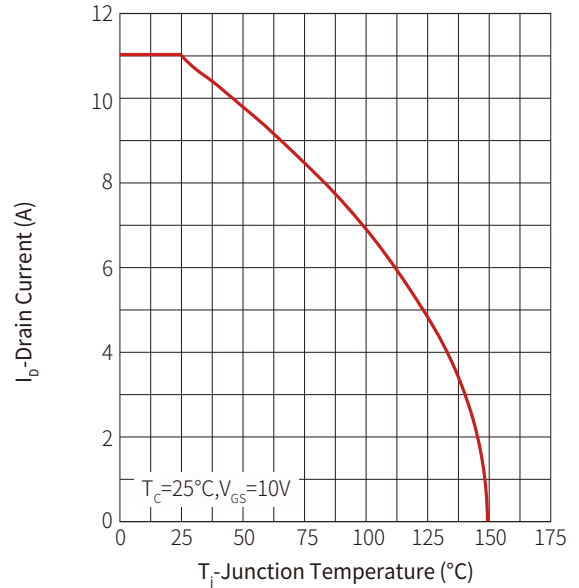


Figure3: Safe Operating Area

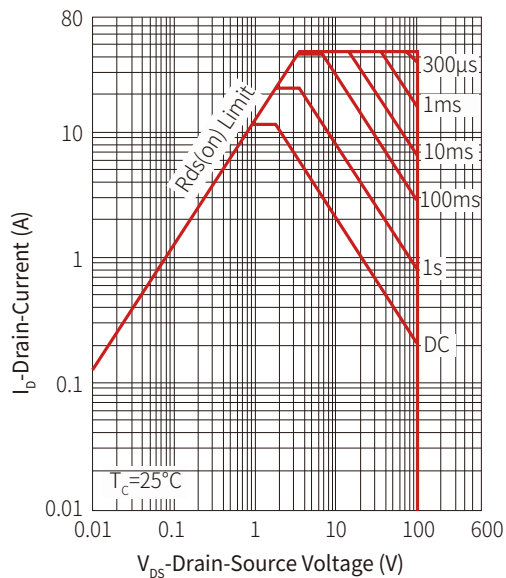


Figure 4: Transient Thermal Impedance

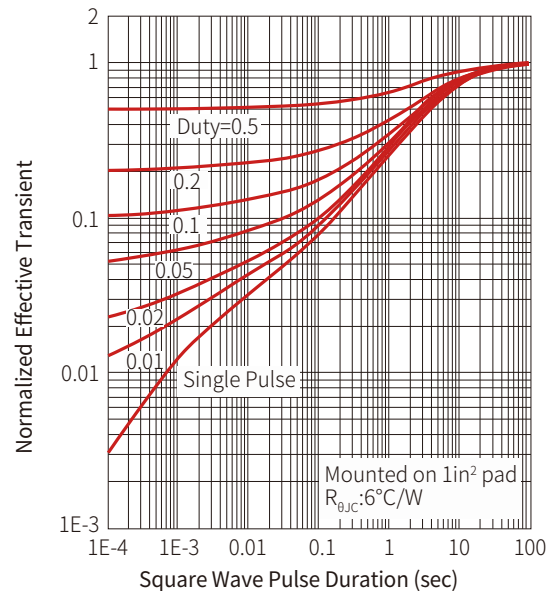


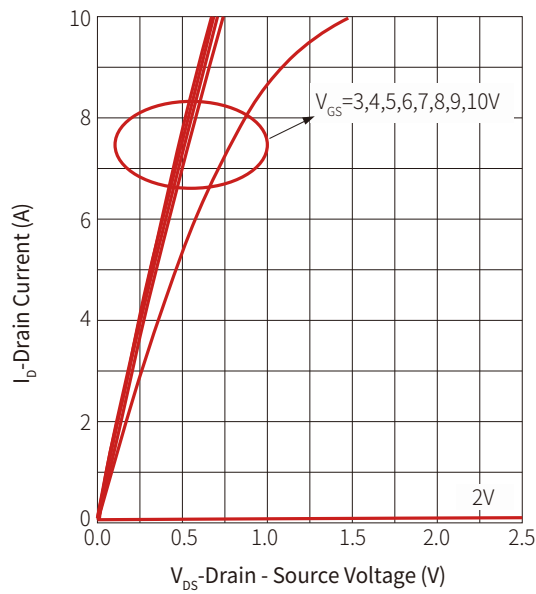
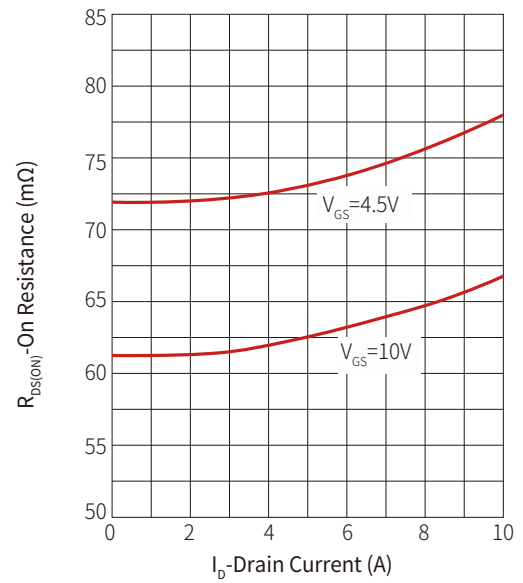
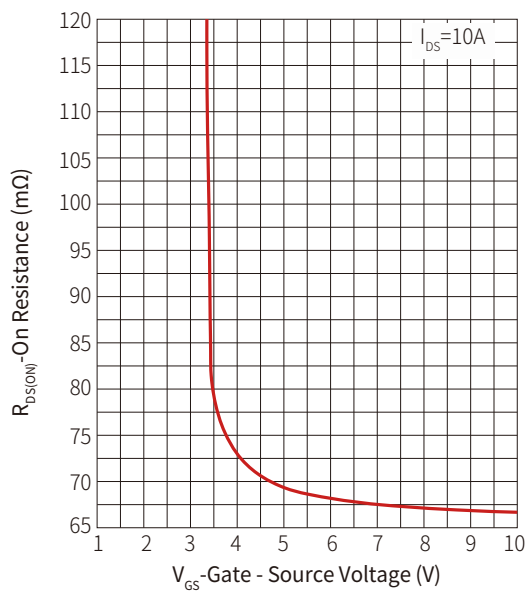
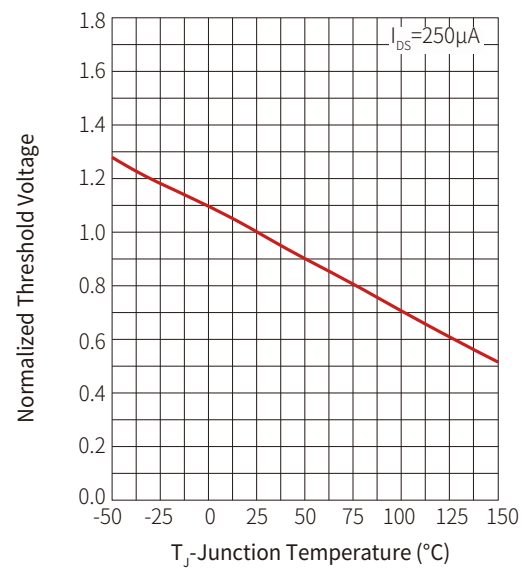
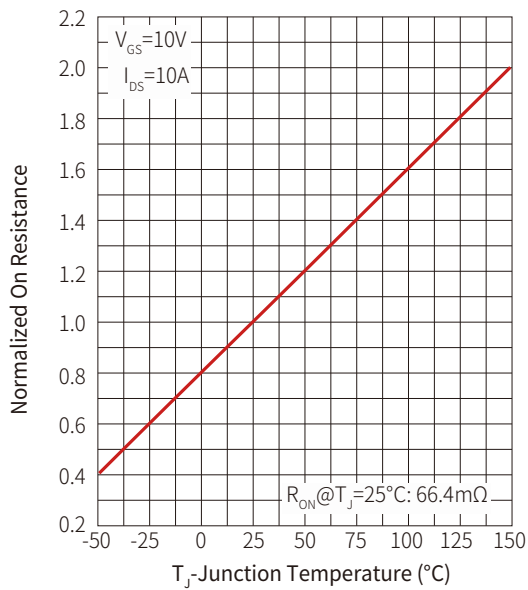
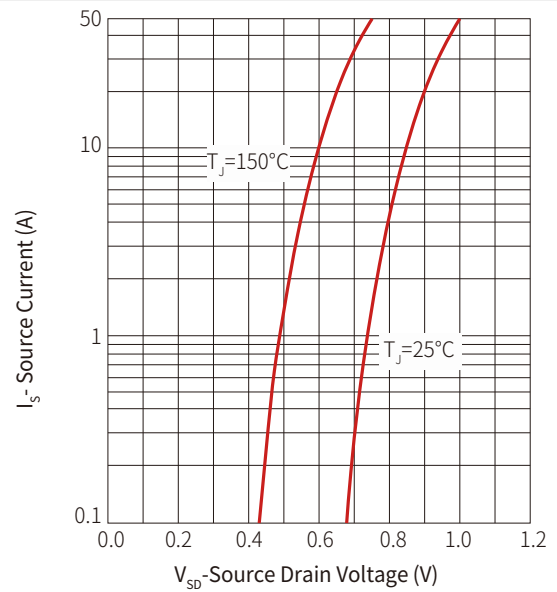
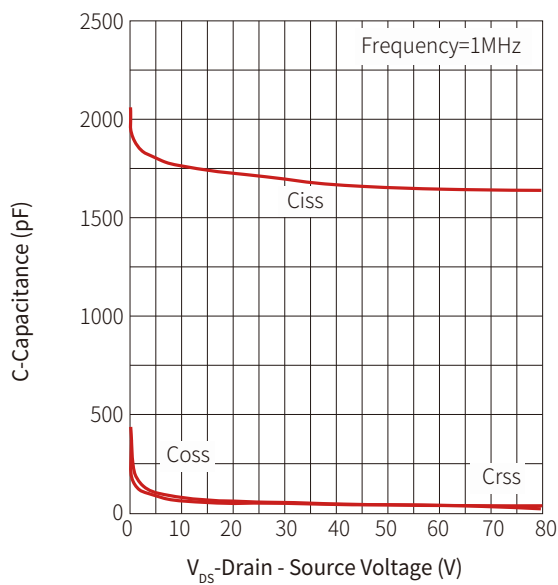
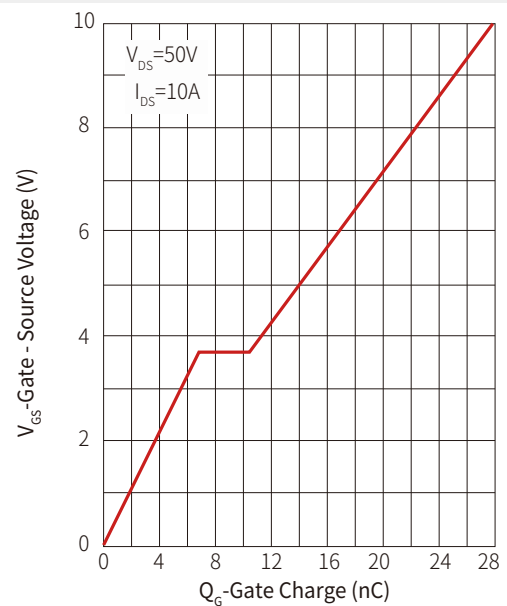
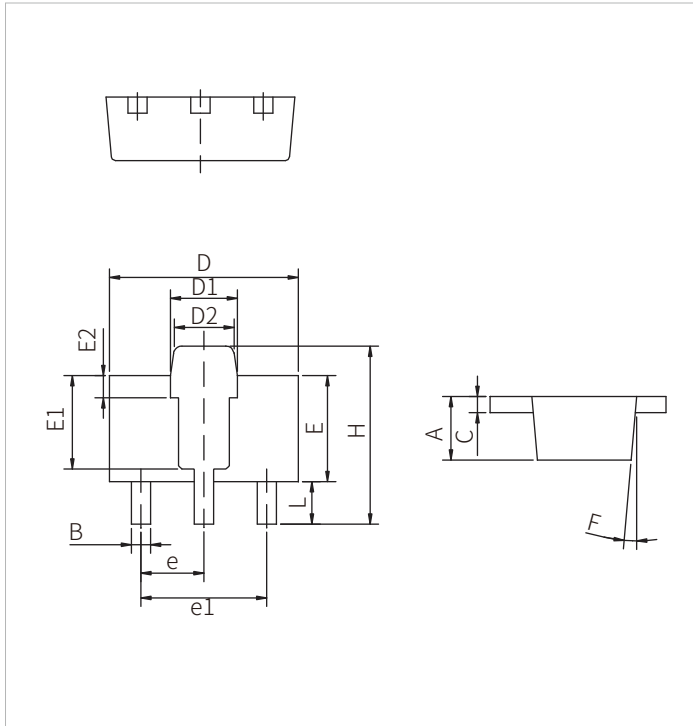
Figure 5: Output Characteristics

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-89 PACKAGE DIMENSIONS



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.40		1.60	0.055		0.063
B	0.40		0.52	0.016		0.020
C	0.35		0.41	0.014		0.016
D	4.40		4.60	0.173		0.181
D1	1.50		1.70	0.059		0.067
D2	1.30		1.50	0.051		0.059
E	2.40		2.60	0.094		0.102
E1		2.20			0.087	
E2		0.52			0.020	
e		1.50			0.059	
e1		3.00			0.118	
F		5.00			5.000	
H	4.05		4.25	0.159		0.167
L	0.89		1.20	0.035		0.047

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Reel	Reel Size
SNM15N10VS	SOT-89	15N10 YWWXXX	1000PCS	7"

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