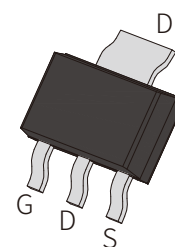


FEATURES

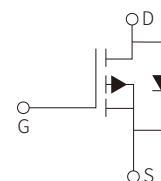
- | Low On-Resistance
- | Excellent Gate Charge x RDS(ON) Product (FOM)
- | Pb-Free Lead Plating
- | 100% UIS Tested, 100% Rg Tested



SOT-223

APPLICATION

- | Battery Management
- | DC/DC in Telecoms and Industrial
- | Hard Switching and High Speed Circuit



Schematic Symbol

APPROVALS

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

ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$)

Parameter		Symbol	Value	Unit
Drain-to-Source Voltage		V_{DS}	-100	V
Continuous Drain Current ⁽¹⁾	$T_c=25^{\circ}\text{C}$	I_D	-9.7	A
	$T_c=100^{\circ}\text{C}$		-6.2	
Pulsed Drain Current ⁽²⁾		I_{DM}	-22	A
Gate-to-Source Voltage		V_{GSS}	± 20	V
Power Dissipation ⁽⁴⁾	$T_c=25^{\circ}\text{C}$	P_D	10.4	W
	$T_c=100^{\circ}\text{C}$		4.2	
Avalanche Energy ⁽³⁾		E_{AS}	109	mJ
Avalanche Current ⁽³⁾		I_{AS}	-27	A
Thermal Resistance, Junction-to-Ambient		$R_{\theta JA}$	70	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case		$R_{\theta JC}$	12.0	$^{\circ}\text{C}/\text{W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_a=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Parameters						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _{DS} =-250μA	-100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-100V, V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0		-2.5	V
Drain Source ON Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-1A		33	38	mΩ
		V _{GS} =-4.5V, I _D =-1A		50	60	mΩ
Diode Forward Voltage	V _{SD}	I _{SD} =-0.5A, V _{GS} =0V	-0.7		-1.3	V
Diode Continuous Current	I _S	T _C =25°C			-10	A
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-50V, V _{GS} =0V, f=1.0MHz		1412		pF
Output Capacitance	C _{oss}			222		pF
Reverse Transfer Capacitance	C _{rss}			2.6		pF
Gate Resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1.0MHz		10.2		Ω
Turn-On Delay Time	t _{d(on)}	V _{DS} =-50V, V _{GS} =-10V R _L =3.3Ω, R _{GEN} =6Ω		10.7		ns
Turn-On Rise Time	t _r			56		ns
Turn-Off Delay Time	t _{d(off)}			45		ns
Turn-Off Fall Time	t _f			81		ns
Total Gate Charge (V _{GS} = -10V)	Q _g	V _{GS} =0 to -10V V _{DS} =-50V, I _D =-15A		20		nC
Total Gate Charge (V _{GS} = -6.0V)	Q _g			12.6		nC
Gate- Source Charge	Q _{gs}			6.4		nC
Gate- Source Charge	Q _{gs}			3.3		nC

Notes:

1. Computed continuous current assumes the condition of T_{J,Max} while the actual continuous current depends on the thermal & electro-mechanical application board design
2. This single-pulse measurement was taken under T_{J,Max} = 150°C
3. This single-pulse measurement was taken under the following condition [L = 300μH, V_{GS} = -10V, V_{DD} = -50V] while its value is limited by T_{J,Max} = 150°C
4. The power dissipation PD is based on T_{J,Max} = 150°C
5. This value is guaranteed by design hence it is not included in the production test

PARAMETER CHARACTERISTIC CURVE

Fig 1: Saturation Characteristics

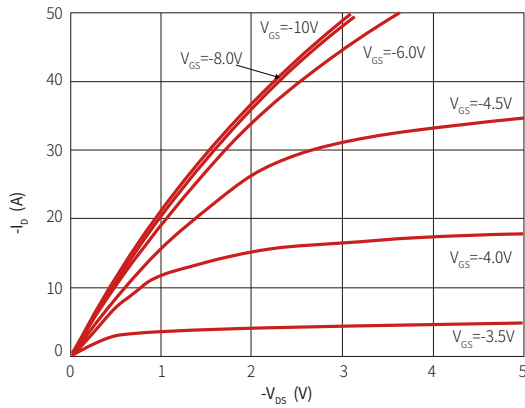


Figure 2: Transfer Characteristics

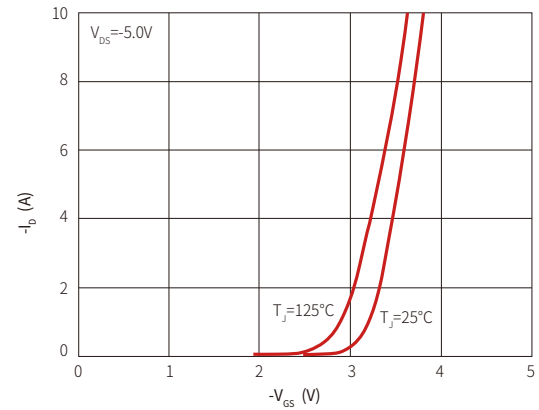


Figure 3: $R_{DS(ON)}$ vs. Drain Current

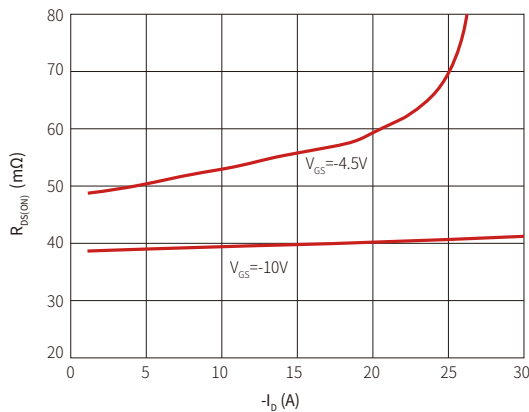


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

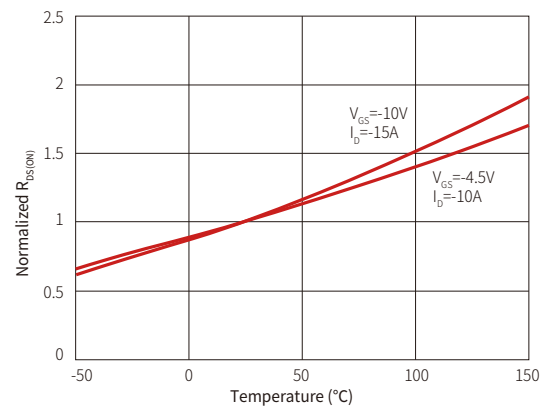


Figure 5: $V_{GS(th)}$ vs. Junction Temperature

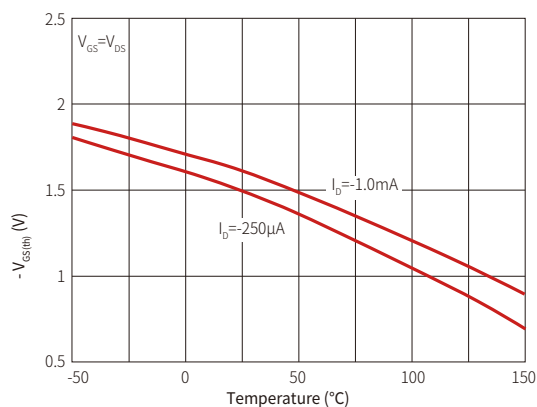


Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

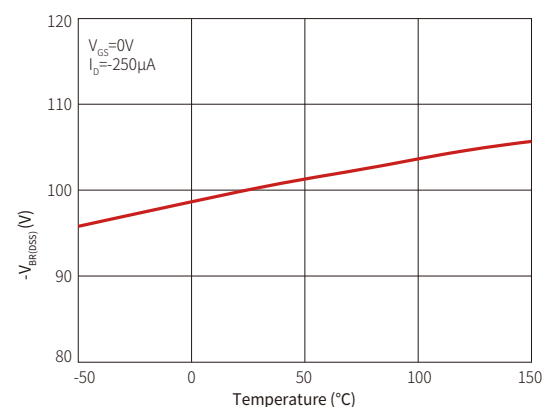


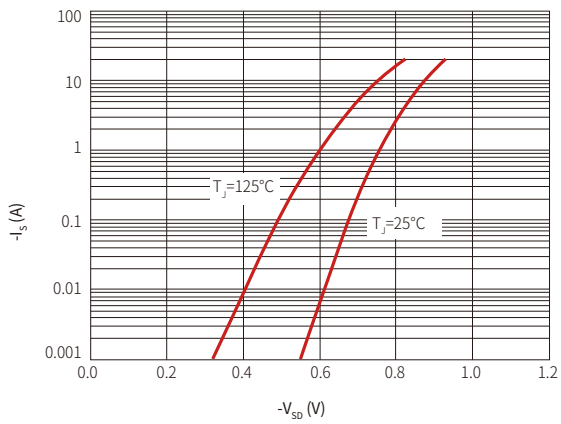
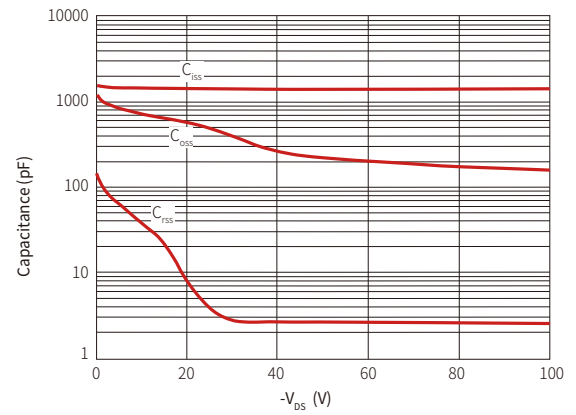
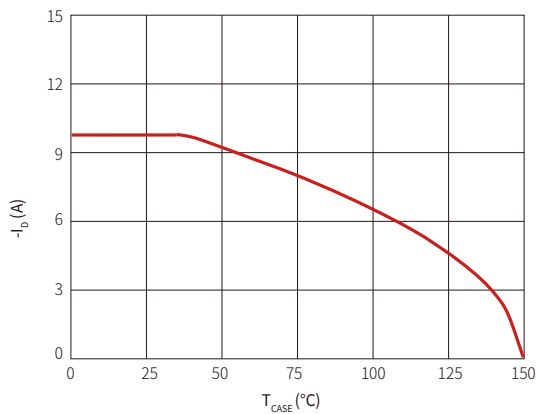
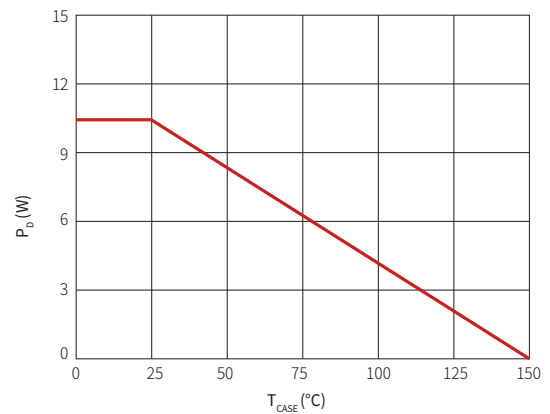
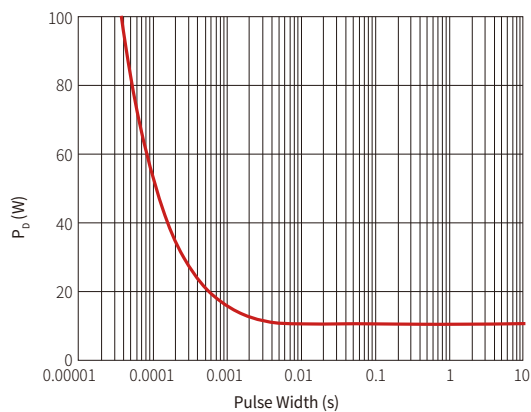
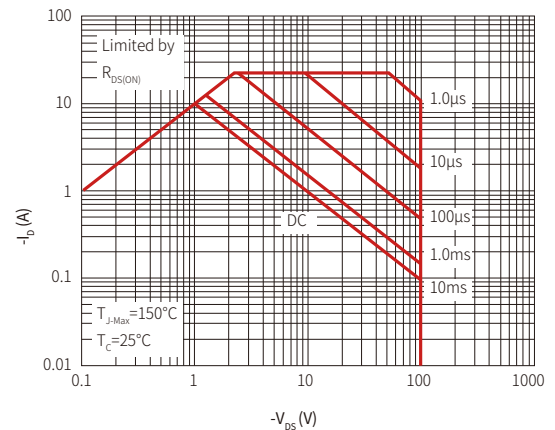
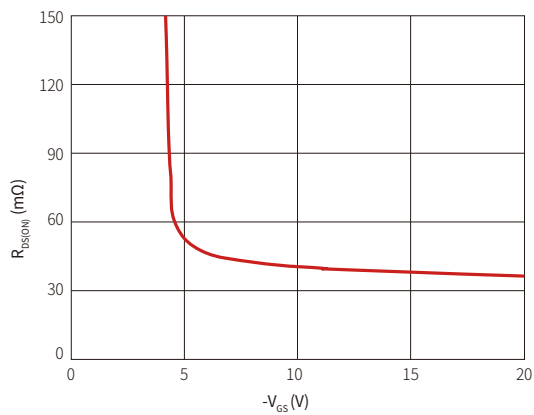
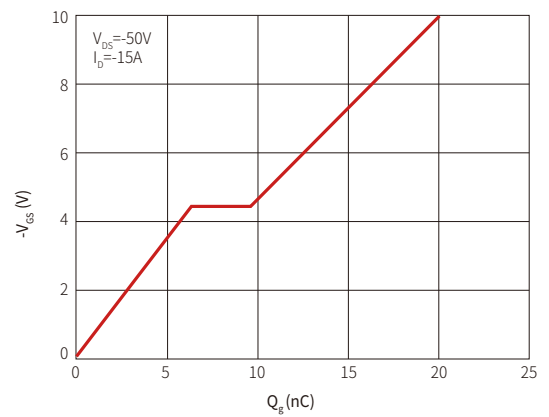
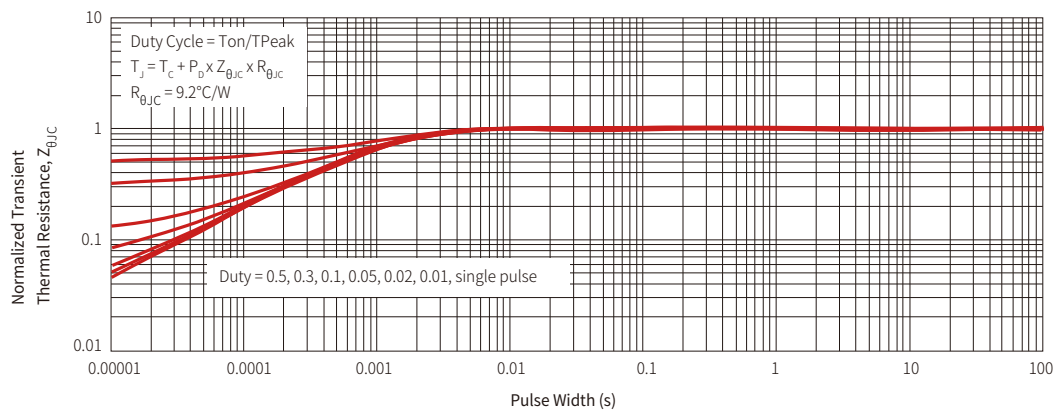
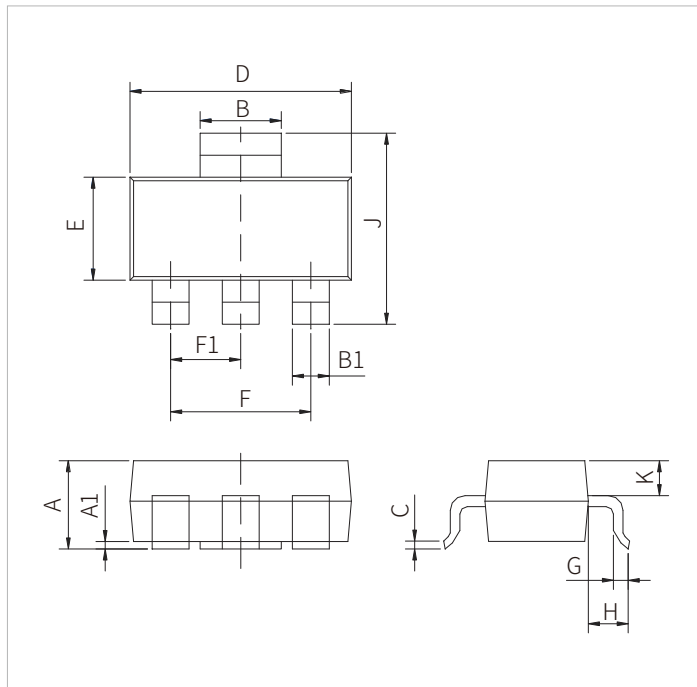
Figure 7: Body-Diode Characteristics

Figure 8: Capacitance Characteristics

Figure 9: Current De-rating

Figure 10: Power De-rating

Figure 11: Single Pulse Power Rating, Junction-to-Case

Figure 12: Maximum Safe Operating Area


Figure 13: $R_{DS(ON)}$ vs. V_{GS}

Figure 14: Gate Charge

Figure 15: Normalized Maximum Transient Thermal Impedance


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		0.002
B	2.90		3.10	0.114		0.122
B1	0.60		0.80	0.024		0.031
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	Marking	QTY/Reel	Reel Size
SPM10P10V	SOT-223	 10P10 XXXX	3000PCS	7"

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By QR Code

Website



Wechat

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