

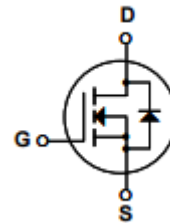
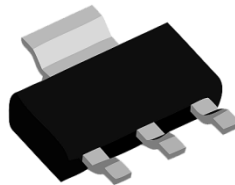
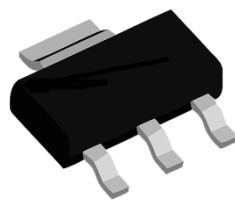
Description

This N-channel MOSFETS use advanced trench technology and design to provide excellent RDS(on) with low gate charge. It can be used in a wide variety of applications.

Features

BVDSS	RDS(ON)	ID
30V	0.035Ω	7.2A

- 1) Low gate charge.
- 2) Green device available.
- 3) Advanced high cell density trench technology for ultra RDS(ON)
- 4) Excellent package for good heat dissipation.



Sot-223

Absolute Maximum Ratings $T_c=25^{\circ}\text{C}$, unless otherwise noted

Symbol	Parameter	Ratings	Units
VDS	Drain-Source Voltage	30	V
VGS	Gate-Source Voltage	±20	V
ID	Continuous Drain Current-1	±7.2	A
	Continuous Drain Current-T=100°C	±25	
	Pulsed Drain Current ²	—	
EAS	Single Pulse Avalanche Energy ³	—	mJ
PD	Power Dissipation ⁴	3	W
TJ, TSTG	Operating and Storage Junction Temperature Range	-65 to 150	°C

Thermal Characteristics

Symbol	Parameter	Ratings	Units
RθJC	Thermal Resistance, Junction to Case ¹	42	°C/W
RθJA	Thermal Resistance, Junction to Ambient ¹	12	

Package Marking and Ordering Information

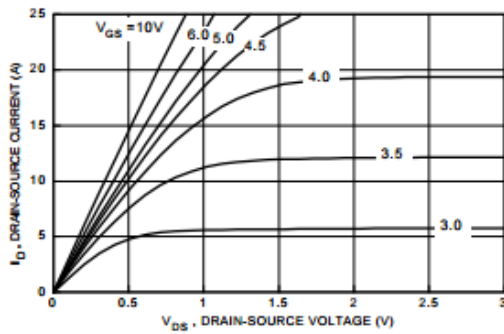
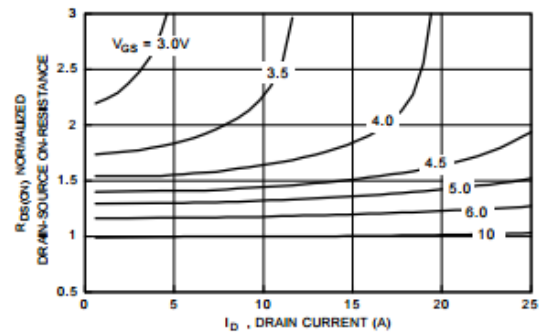
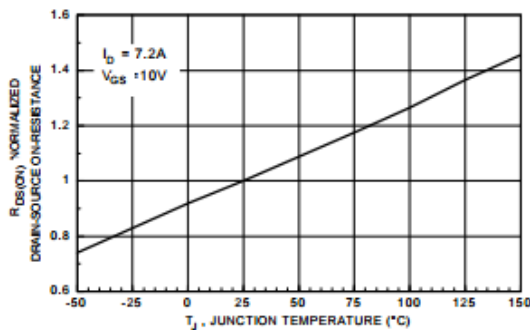
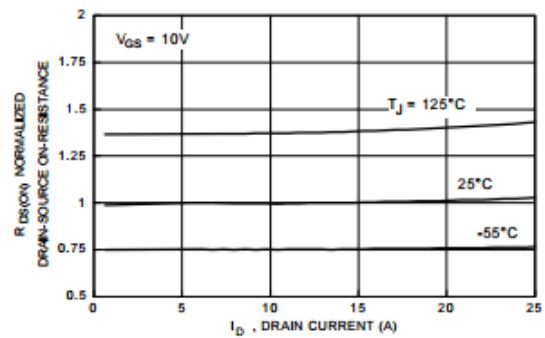
Part NO.	Marking	Package
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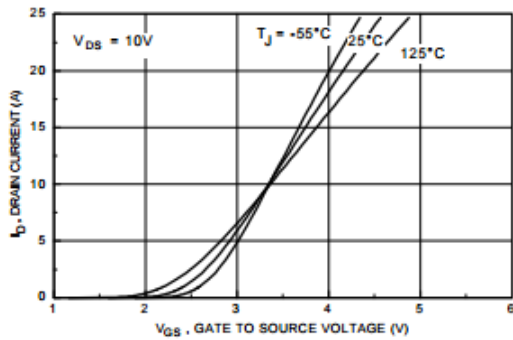
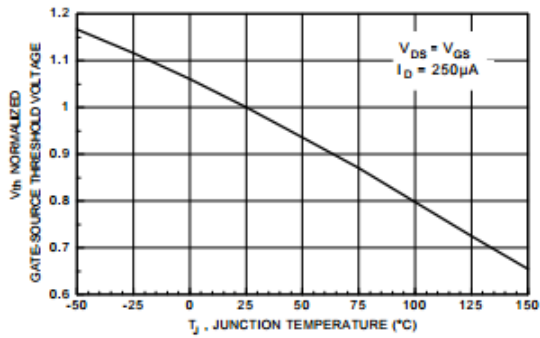
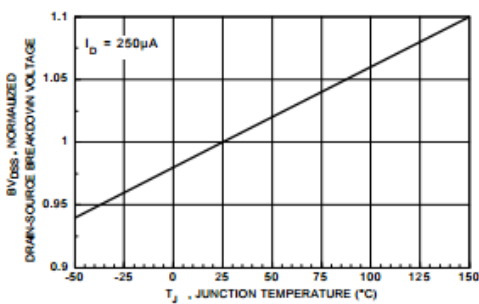
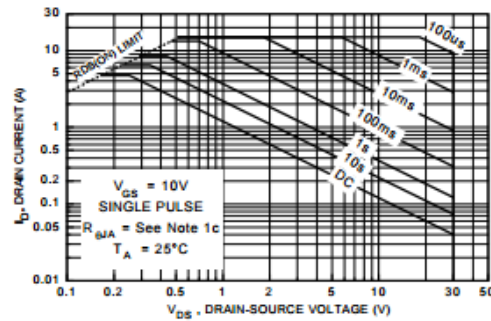
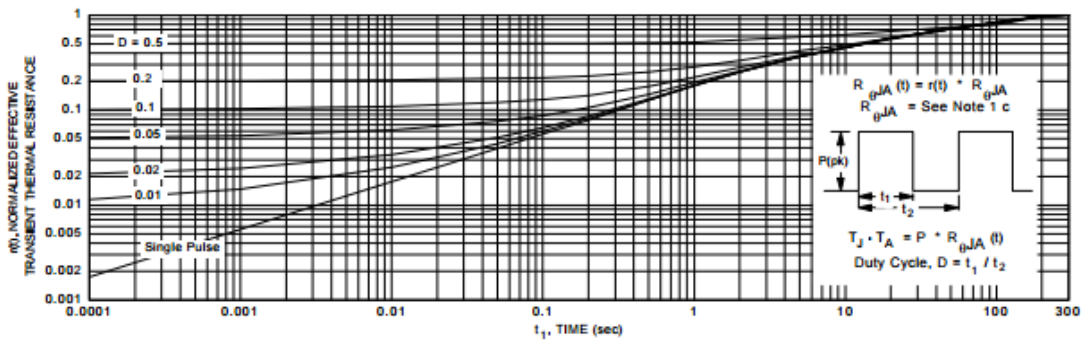
Electrical Characteristics $T_c=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	—	—	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=32V$	—	—	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{DS}=\pm 20V, V_{GS}=0A$	—	—	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{DS}=V_{DS}, I_D=250\mu A$	1	1.6	3	V
$R_{DS(on)}$	Drain-Source On Resistance ²	$V_{DS}=10V, I_D=6A$	—	0.03	0.035	Ω
		$V_{DS}=2.5V, I_D=5A$	—	0.042	0.063	
G_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=12A$	—	11	—	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V,$ $f=1MHz$	—	720	—	pF
C_{oss}	Output Capacitance		—	370	—	
C_{rss}	Reverse Transfer Capacitance		—	250	—	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=20V,$ $V_{GS}=10V, R_{GEN}=3.3\Omega$	—	12	20	ns
t_r	Rise Time		—	13	30	ns
$t_{d(off)}$	Turn-Off Delay Time		—	29	50	ns
t_f	Fall Time		—	10	20	ns
Q_g	Total Gate Charge	$V_{GS}=4.5V, V_{DS}=20V,$ $I_D=6A$	—	19	30	nC
Q_{gs}	Gate-Source Charge		—	2.3	—	nC
Q_{gd}	Gate-Drain "Miller" Charge		—	5.5	—	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage ²	$V_{GS}=0V, I_S=1A$	—	0.9	1.3	V
t_{rr}	Reverse Recovery Time	$I_F=7A, di/dt=100A/\mu S$	—	—	100	ns
Q_{rr}	Reverse Recovery Charge		—	—	—	nC

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board 2OZ copper.
2. The data tested by pulse width \leq 300us,duty cycle \leq 2%
3. The EAS data shows Max. rating. The test condition is $V_{DD}=25V,V_{GS}=10V,L=0.1mH,i_{AS}=17.8A$
4. The power dissipation is limited by 150 $^{\circ}C$ junction temperature.

Typical Characteristics $T_J=25^{\circ}C$ unless otherwise noted

Figure 1. On-Region Characteristics

Figure 2. On-Resistance Variation with Gate Voltage and Drain Current

Figure 3. On-Resistance Variation with Temperature

Figure 4. On-Resistance Variation vs. Drain Current and Gate Voltage


Figure 5. Transfer Characteristics.

Figure 6. Gate Threshold Variation with Temperature.

Figure 7. Breakdown Voltage Variation vs. Temperature

Figure 8. Maximum Safe Operating Area

Figure 9. Transient Thermal Response Curve