

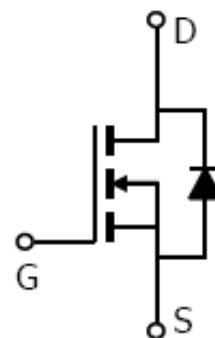
650V N-Channel MOSFET

FEATURE

- High Current Rating
- Lower $R_{ds(on)}$
- Lower Capacitance
- Lower Total Gate Charge
- Tighter VSD Specifications
- Avalanche Energy Specified

TO-220

1. GATE
2. DRAIN
3. SOURCE



Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GSS}	± 30	
Continuous Drain Current	I_D	7.0	A
Continuous Drain-Source Diode Forward Current	I_S	7.0	
Single Pulsed Avalanche Energy (note1)	E_{AS}	260	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	$^{\circ}\text{C}$
Maximum lead temperature for soldering purposes , 1/8" from case for 5 seconds	T_L	260	

Electrical characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	650			V
Drain-source diode forward voltage(note2)	V _{SD}	V _{GS} = 0V, I _S =7.0A			1.5	
Zero gate voltage drain current	I _{DSS}	V _{DS} =600V, V _{GS} =0V			25	μA
Gate-body leakage current, forward(note2)	I _{GSSF}	V _{DS} =0V, V _{GS} =30V			100	nA
Gate-body leakage current, reverse(note2)	I _{GSSR}	V _{DS} =0V, V _{GS} =-30V			-100	
On characteristics (note2)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	V
Static drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.0A		1.15	1.5	Ω
Forward transconductance	g _{fs}	V _{DS} =50V, I _D =3A	2.0	2.6		S

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TYPICAL CHARACTERISTICS

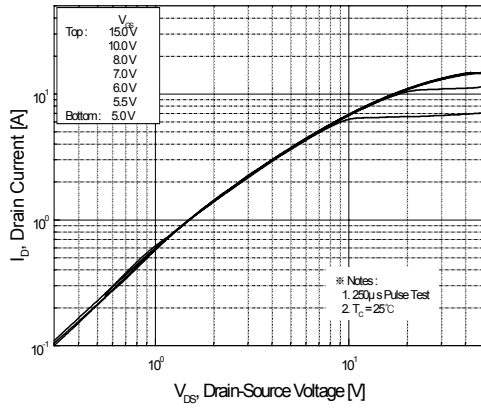


Figure 1. On-Region Characteristics

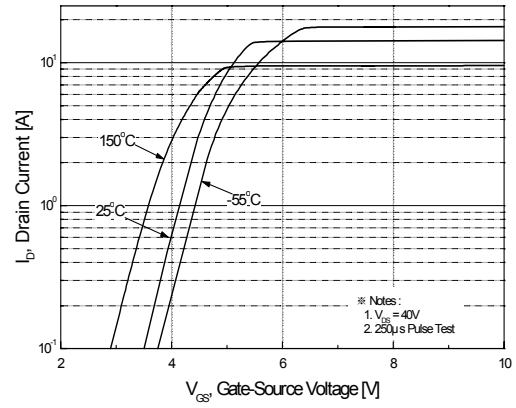


Figure 2. Transfer Characteristics

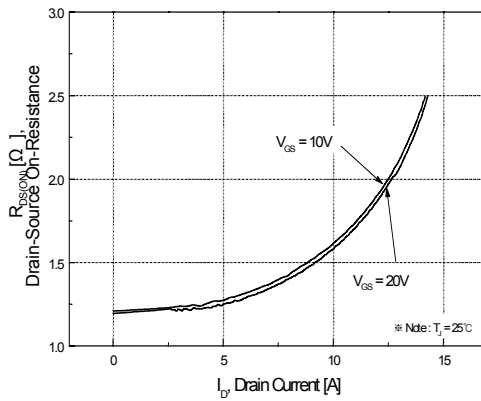


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

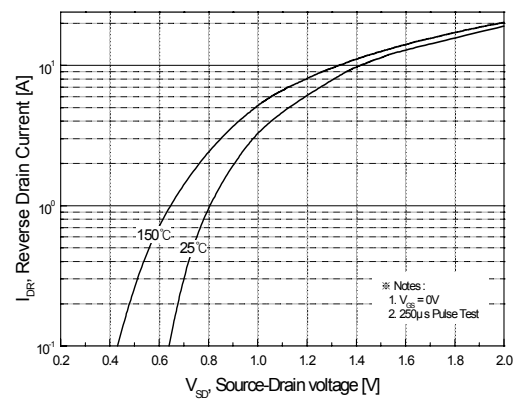


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

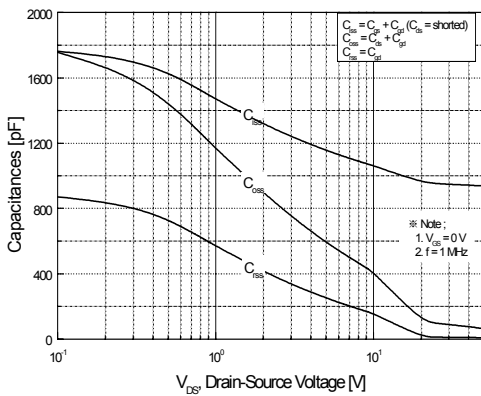


Figure 5. Capacitance Characteristics

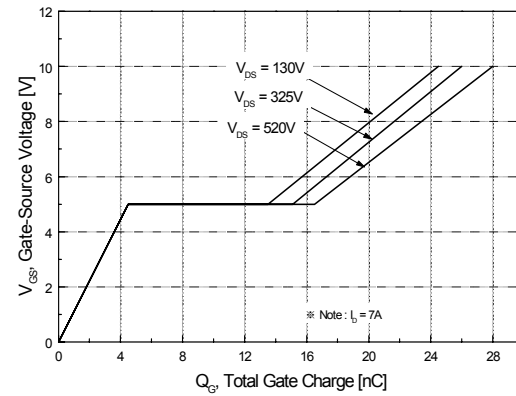


Figure 6. Gate Charge Characteristics

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Package Dimensions

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