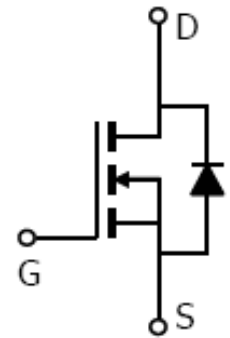
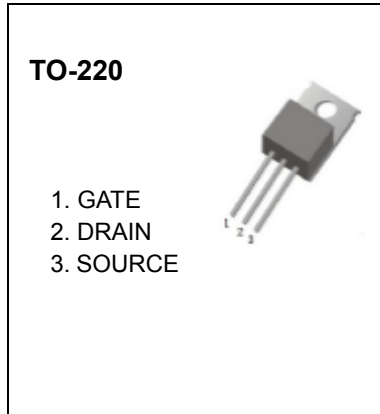


650V N-Channel MOSFET

FEATURE

- High Current Rating
- Lower $R_{ds(on)}$
- Lower Capacitance
- Lower Total Gate Charge
- Tighter VSD Specifications
- Avalanche Energy Specified
- Marking: 7N65



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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu\text{A}$	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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	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

650V N-Channel MOSFET

TYPICAL CHARACTERISTICS

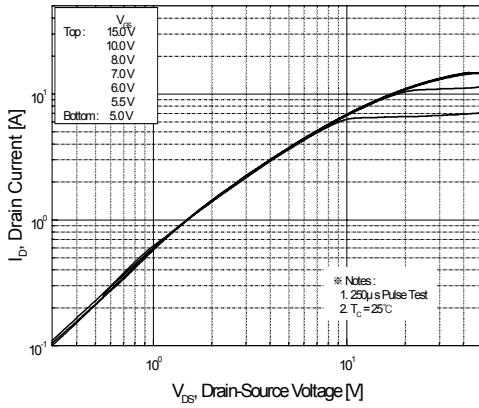


Figure 1. On-Region Characteristics

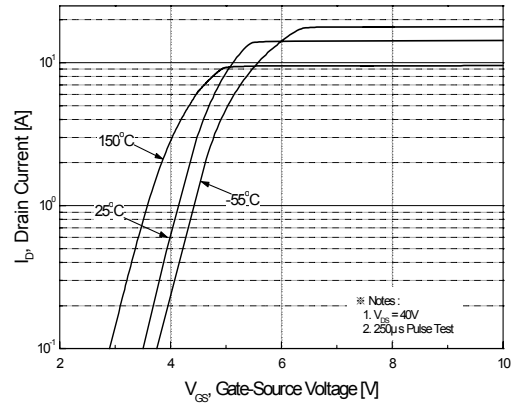


Figure 2. Transfer Characteristics

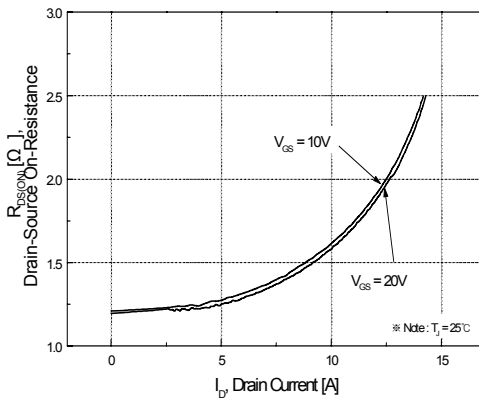


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

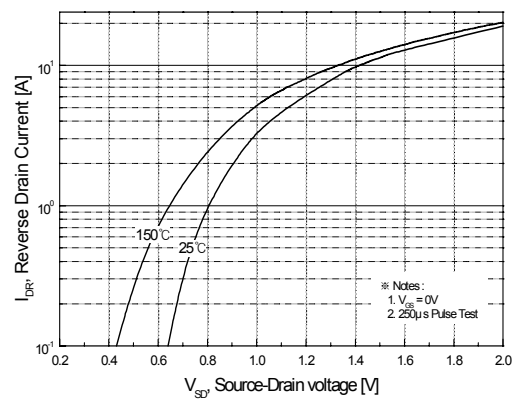


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

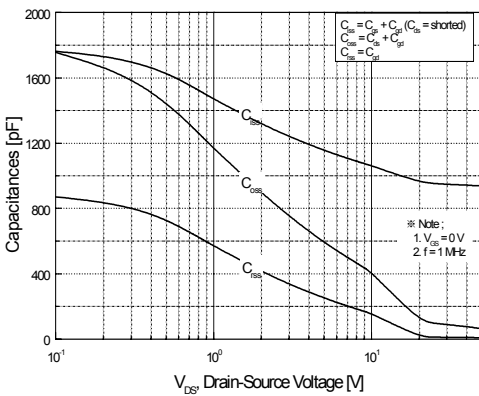


Figure 5. Capacitance Characteristics

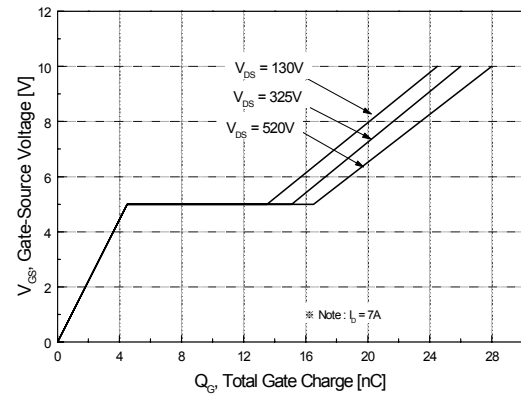


Figure 6. Gate Charge Characteristics

650V N-Channel MOSFET

Package Dimensions

TO-220

