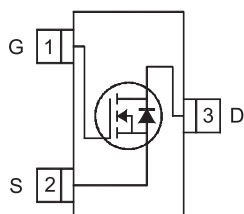# N Channel MOSFET

multicomp PRO

Features

- V_{DS} (V) =100V
- I_D =1.6 A (V_{GS} =10V)
- $R_{DS(ON)}$ < 22mΩ (V_{GS} =10V)
- $R_{DS(ON)}$ < 235mΩ (V_{GS} =4.5V)

G 1   3 D
S 2

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±16	
Continuous Drain Current @ VGS=10V	TA=25°C	I_D	1.6	A
	TA=70°C		1.3	
Pulsed Drain Current		I_{DM}	7	
Power Dissipation	TA=25°C	P_D	1.3	W
	TA=70°C		0.8	
Thermal Resistance.Junction- to-Ambient (Note.1)		R_{thJA}	100	°C/W
			99	
Linear Derating Factor			0.01	W/°C
Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{stg}	-55 to 150	

Note.1: Surface mounted on 1 in square Cu board

Electrical Characteristics Ta = 25°C

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250µA, V_{GS}=0V	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			20	uA
		V_{DS}=100V, V_{GS}=0V, T_J=125°C			250	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±16V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250µA	1		2.5	V
Static Drain-Source On-Resistance (Note.1)	$R_{DS(On)}$	V_{GS}=4.5V, I_D=1.3A		190	235	mΩ
		V_{GS}=10V, I_D=1.6A		178	220	
Forward Transconductance	g_{FS}	V_{DS}=50V, I_D=1.6A	5.7			S

multicomp PRO

N Channel MOSFET

multicompPRO

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz		290		pF
Output Capacitance	C_{oss}			27		
Reverse Transfer Capacitance	C_{RSS}			13		
Gate Resistance	R_g			1.3		Ω
Total Gate Charge	Q_g	V_{GS}=4.5V, V_{DS}=50V, I_D=1.6A		2.5		nC
Gate Source Charge	Q_{gs}			0.5		
Gate Drain Charge	Q_{gd}			1.2		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=4.5V, V_{DS}=50V, I_D=1A, R_{GEN}=6.8Ω		2.2		nS
Turn-On Rise Time	t_r			2.1		
Turn-Off DelayTime	$t_{d(off)}$			9		
Turn-Off Fall Time	t_f			3.6		
Body Diode Reverse Recovery Time	t_{rr}	V_R=50V, I_F= 1.1A, dI/dt= 100A/µs , T_J = 25°C (Note.1)		20	30	
Body Diode Reverse Recovery Charge	Q_{rr}			13	20	nC
Maximum Body-Diode Continuous Current	I_S				1.1	A
Pulsed Source Current	I_{SM}	(Note.2)			7	
Diode Forward Voltage	V_{SD}	I_S=1.1A, V_{GS}=0V, T_J = 25° (Note.1)			1.3	V

Note.1 : Pulse width ≤ 400µs; duty cycle ≤ 2%.
Note.2 : Repetitive rating; pulse width limited by max. junction temperature.

Typical Characterisitics

Fig 1. Typical Output Characteristics

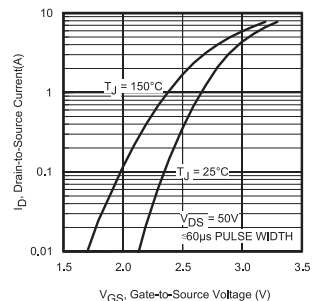**Fig 2.** Typical Output Characteristics

Fig 3. Typical Transfer Characteristics
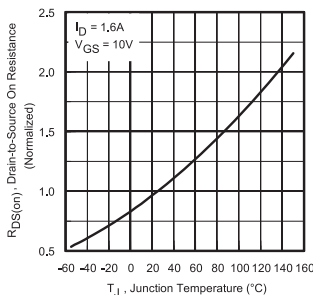

Fig 4. Normalized On-Resistance Vs. Temperature

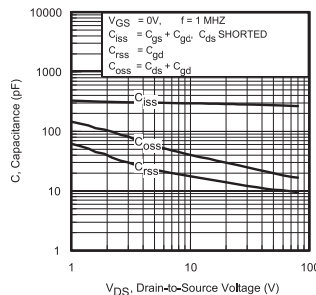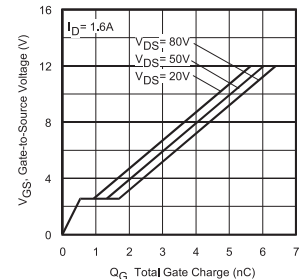**Fig 5.** Typical Capacitance Vs. Drain-to-Source Voltage

Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

multicompPRO

03/02/25   V1.0

N Channel MOSFET

Typical Characterisitics
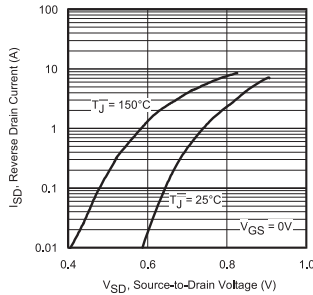

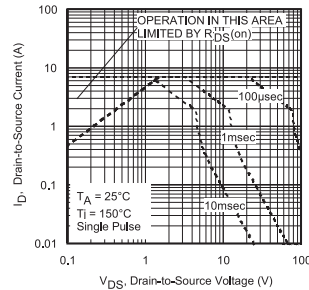**Fig 7.** Typical Source-Drain Diode Forward Voltage

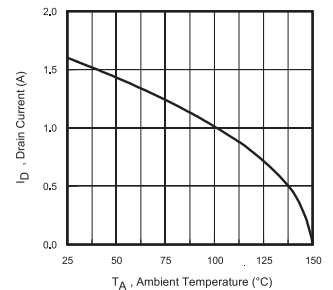**Fig 8.** Maximum Safe Operating Area

Fig 9. Maximum Drain Current Vs. Ambient Temperature
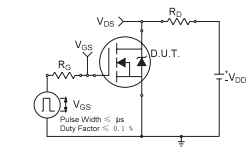

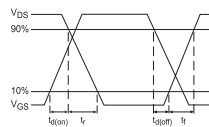**Fig 10a.** Switching Time Test Circuit

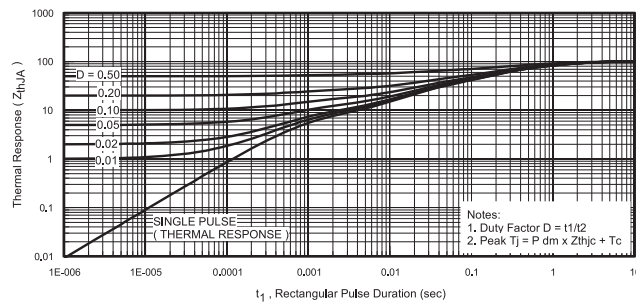
Fig 10b. Switching Time Waveforms

Fig 11. Typical Effective Transient Thermal Impedance, Junction-to-Ambient
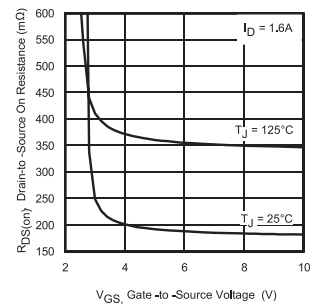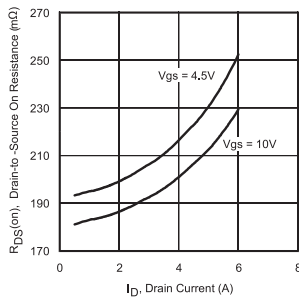

Fig 12. Typical On-Resistance Vs. Gate Voltage
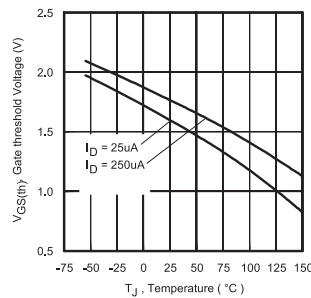

Fig 13. Typical On-Resistance Vs. Drain Current

Fig 14. Typical Threshold Voltage Vs. Junction Temperature
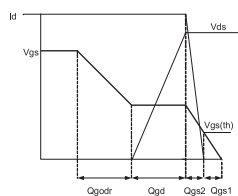

Fig 15. Typical Power Vs. Time
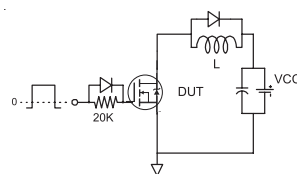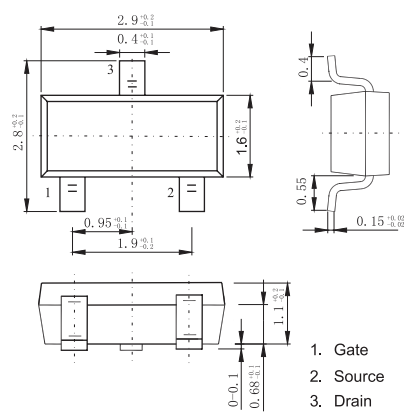

Fig 16a. Basic Gate Charge Waveform

Fig 16b. Gate Charge Test Circuit

Newark.com/multicomp-pro
Farnell.com/multicomp-pro
sg.element14.com/b/multicomp-pro

multicomp PRO

Page <3>   03/02/25   V1.0

N Channel MOSFET

multicomp PRO

Diagram

1. Gate
2. Source
3. Drain

Dimensions : Millimetres

Part Number Table

Description	Part Number
MOSFET, N Channel, 1.6A, 100V, SOT23-3	IRLML0100

Newark.com/multicomp-pro
Farnell.com/multicomp-pro
sg.element14.com/b/multicomp-pro

multicomp PRO