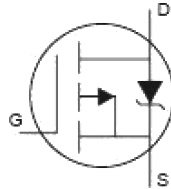


P Channel Enhancement MOSFET multicomp^{PRO}

RoHS
Compliant



Features

- Ultra low on-resistance.
- P-Channel MOSFET.
- Fast switching.

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	-12	V
Gate-Source Voltage	V _{GS}	±8	
Continuous Drain Current V _{GS} =4.5V @ TA=25°C	I _D	-4.3	A
Continuous Drain Current V _{GS} =4.5V @ TA=70°C		-3.4	
Pulsed Drain Current a	I _{DM}	-34	
Power Dissipation @ TA=25°C	P _D	1.3	W
Power Dissipation @ TA=70°C		0.8	
Single Pulse Avalanche Energy b	E _{AS}	33	mJ
Thermal Resistance. Junction- to-Ambient	R _{thJA}	100	°C/W
Linear Derating Factor		0.01	W/°C
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{stg}	-55 to 150	

Note.

- a. Repetitive Rating : Pulse width limited by maximum junction temperature
b. Starting T_J=25°C, L=3.5mH, R_G=25Ω, I_{SS}=-4.3A

Electrical Characteristics Ta = 25°C

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250μA, V _{GS} =0V	-12			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-12V, V _{GS} =0V			-1	μA
		V _{DS} =9.6V, V _{GS} =0V, T _J =55°C			-25	
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250μA	-0.4	-0.55	-0.95	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-4.3A			50	mΩ
		V _{GS} =-2.5V, I _D =-2.5A			85	
		V _{GS} =-1.8V, I _D =-2A			125	

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Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Forward Transconductance	g_{FS}	$V_{DS}=-10V, I_D=-4.3A$	8.6			S
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=-10V, f=1MHz$		830		pF
Output Capacitance	C_{oss}			180		
Reverse Transfer Capacitance	C_{rss}			125		
Total Gate Charge	Q_g	$V_{GS}=-5V, V_{DS}=-10V, I_D=-4.3A$		10	15	nC
Gate Source Charge	Q_{gs}			1.4	2.1	
Gate Drain Charge	Q_{gd}			2.6	3.9	
Turn-On DelayTime	$t_{d(on)}$	$I_D=-1A, V_{DS}=-6V, R_L=6\Omega, R_{GEN}=89\Omega$		11		nS
Turn-On Rise Time	t_r			32		
Turn-Off DelayTime	$t_{d(off)}$			250		
Turn-Off Fall Time	t_f	$I_F=-1.3A, dI/dt=-100A/\mu s$		210		nS
Body Diode Reverse Recovery Time	t_{rr}			22	33	
Body Diode Reverse Recovery Charge	Q_{rr}			8	12	
Maximum Body-Diode Continuous Current	I_S				1.3	A
Diode Forward Voltage	V_{SD}	$I_S=-1.3A, V_{GS}=0V$			-1.2	V

Typical Characteristics

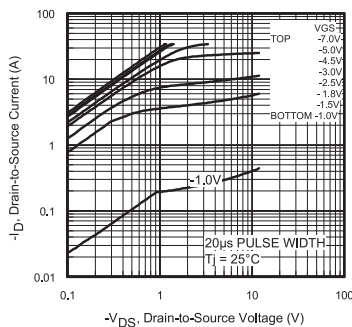


Fig 1. Typical Output Characteristics

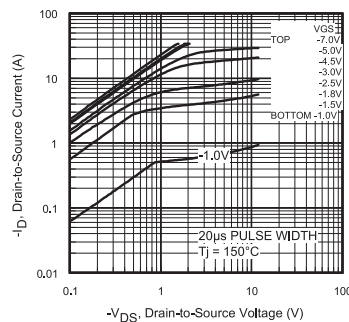


Fig 2. Typical Output Characteristics

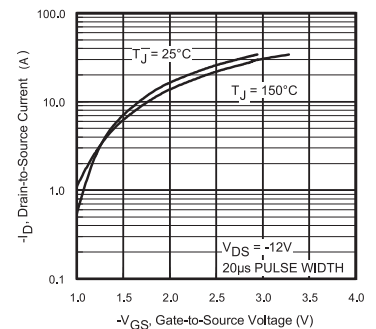


Fig 3. Typical Transfer Characteristics

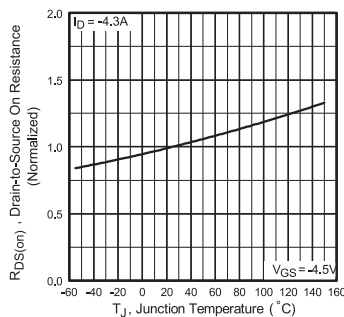


Fig 4. Normalized On-Resistance Vs. Temperature

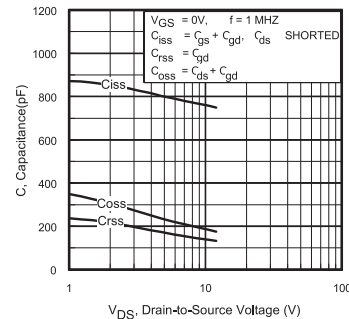


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

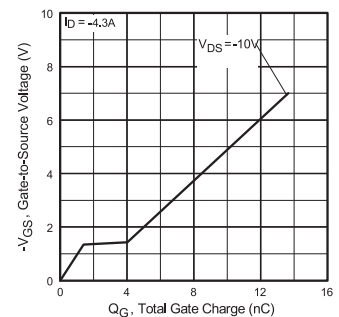


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

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Typical Characteristics

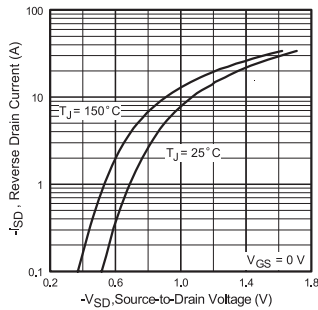


Fig 7. Typical Source-Drain Diode Forward Voltage

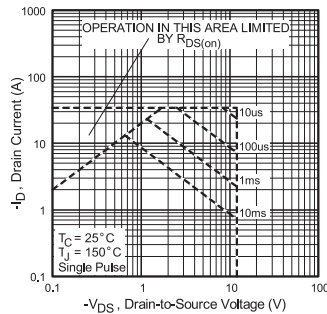


Fig 8. Maximum Safe Operating Area

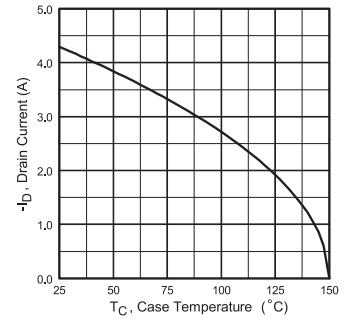


Fig 9. Maximum Drain Current Vs. Case Temperature

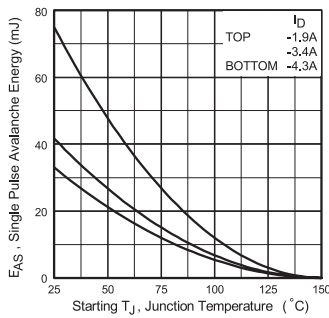


Fig 10. Maximum Avalanche Energy Vs. Drain Current

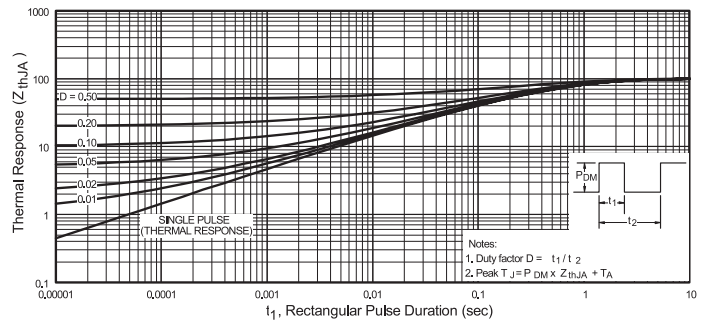


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

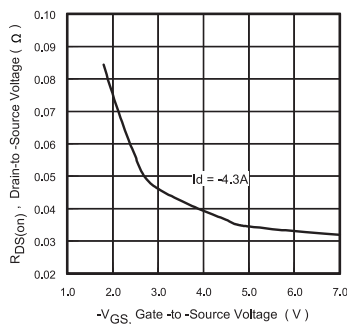


Fig 12. Typical On-Resistance Vs. Gate Voltage

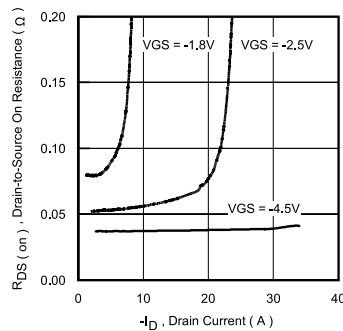


Fig 13. Typical On-Resistance Vs. Drain Current

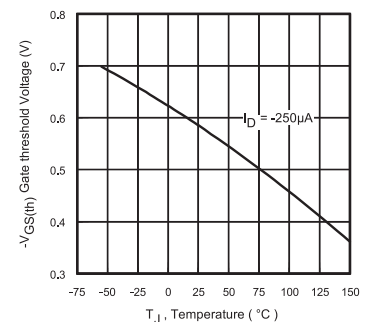
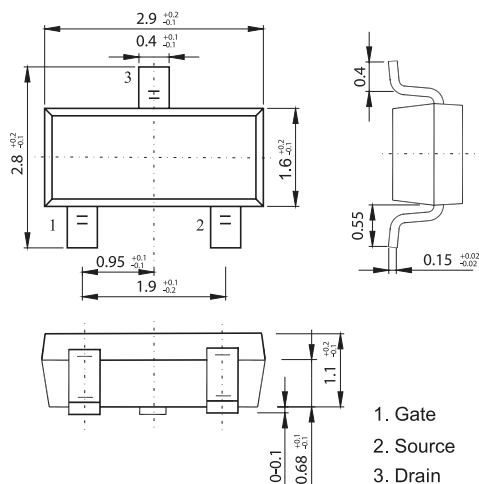


Fig 14. Typical Threshold Voltage Vs. Junction Temperature

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Diagram



Part Number Table

Description	Part Number
P Channel Enhancement MOSFET, -4.3A, -12V, SOT 23	IRLML6401-3

Dimensions : Millimetres

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