

/ Descriptions

TO-220 N MOS N-CHANNEL MOSFET in a TO-220 Plastic Package.

/ Features

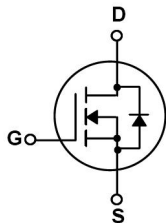
Low gate charge, low crss, fast switching.

/ Applications

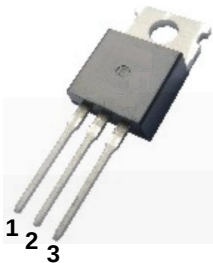
DC/DC

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S

/ h_{FE} Classifications & Marking

See Marking Instructions.

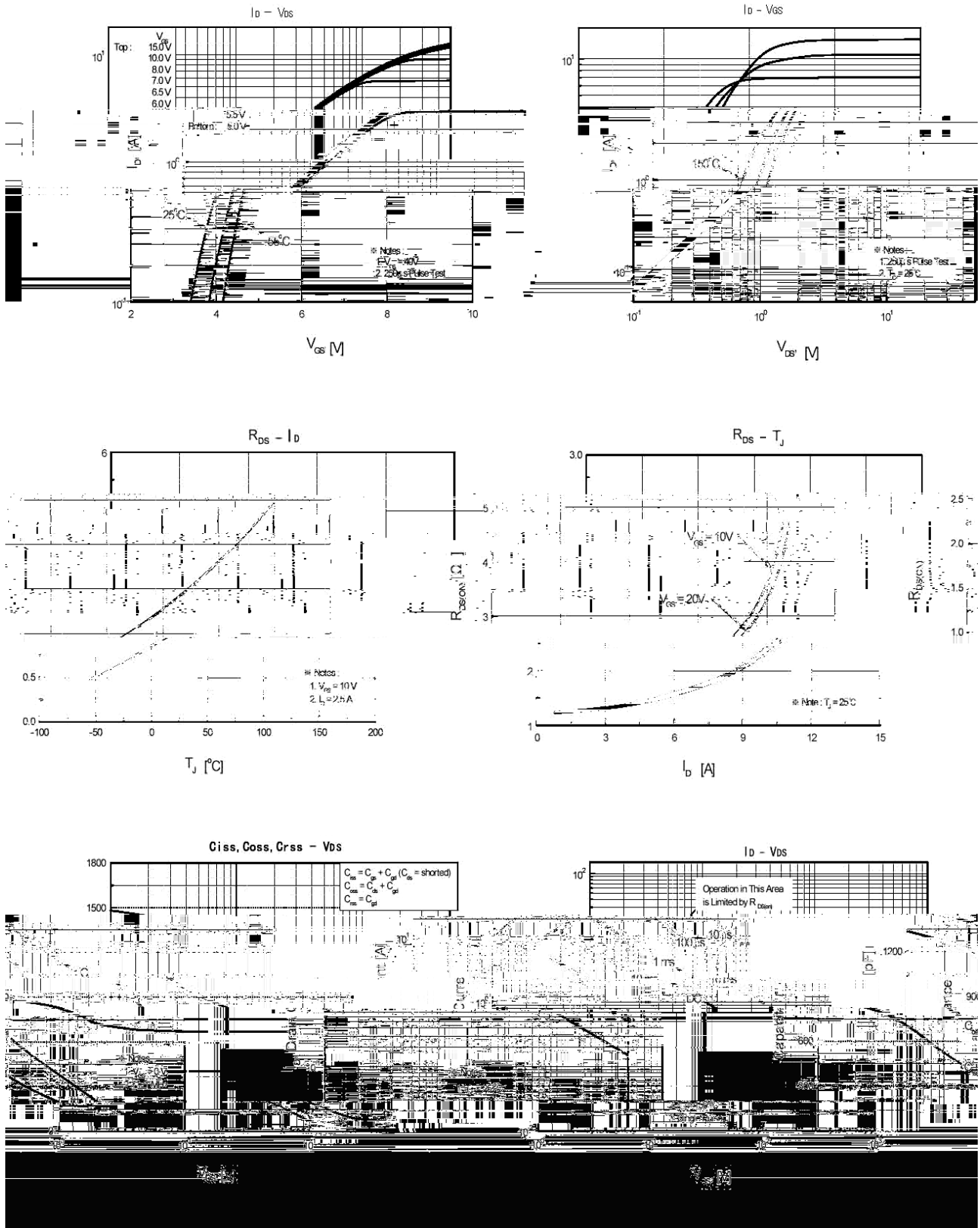
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	500	V
Drain Current	$I_D(T_C=25^{\circ}C)$	5.0	A
	$I_D(T_C=100^{\circ}C)$	3.0	A
Pulsed Drain Current	I_{DM}	20	A
Gate-Source Voltage	V_{GSS}	± 30	V
Avalanche Current	I_{AR}	5	A
Single Pulsed Avalanche Energy	E_{AS}	292	mJ
Repetitive Avalanche Energy	E_{AR}	8.75	mJ
Total Power Dissipation	$P_D(T_C=25^{\circ}C)$	87.5	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	BV_{DSS}	$V_{GS}=0V$ $I_D=250$ A	500			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=500V$ $V_{GS}=0V$			10	A
		$V_{DS}=400V$ $T_C=125^{\circ}C$			100	A
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$			± 0.1	A
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250$ A	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=2.5A$		1.15	1.4	
Forward Transconductance	g_{FS}	$V_{DS}=40V$ $I_D=2.5A$		4.2		S
Forward On Voltage	V_{SD}	$V_{GS}=0V$ $I_S=5.0A$			1.5	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		680	900	pF
Output Capacitance	C_{oss}			85	110	
Reverse Transfer Capacitance	C_{rss}			15	20	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=250V$ $I_D=5.0A$ $R_G=25$		20	50	ns
Turn-On Rise Time	t_r			40	90	
Turn-Off Delay Time	$t_{d(off)}$			90	190	
Turn-Off Fall Time	t_f			45	100	

/ Electrical Characteristic Curve

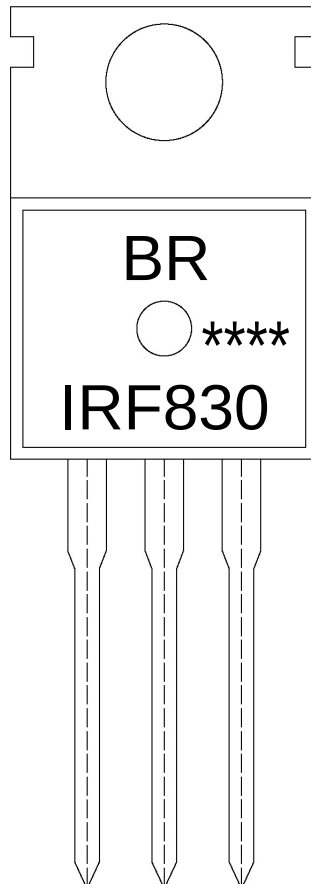


The results of the present study suggest that the effects of the intervention may have been mediated by changes in self-efficacy. The mean scores on the self-efficacy scale were significantly higher at baseline than at follow-up ($p < .001$). This finding is consistent with previous research showing that self-efficacy is a key factor in determining whether individuals will engage in health-promoting behaviors (Bandura, 1982). The intervention may have helped participants develop a stronger belief in their ability to perform the exercises correctly and consistently, which could have led to increased adherence and improved outcomes. However, it is important to note that the self-efficacy scale used in this study was a general measure of confidence in one's ability to perform physical activities, rather than a specific measure of confidence in performing the exercises taught in the program. Future research should explore the relationship between self-efficacy and exercise adherence more thoroughly.



Dimensions in Millimeters			Dimensions in Millimeters		
Symbol	Min	Max	Symbol	Min	Max
Δ	9.8	10.2	C	1.2	1.4
b	7.5	8.5	B	1.3	1.6
b ₁	9.4	10.6	B ₁	15.7	16.1
b ₂	2.6	3.0	C ₁	12.6	13.6
b ₃	0.9	1.0	a ₁	9.6	10.6
b ₄	1.32	1.4	a ₂	6.32	6.4
b ₅	2.14	2.2	a ₃	4.7	4.8
b ₆	1.45	1.5	a ₄		
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/ Marking Instructions



BR

IRF830

Note:

BR: Company Code

IRF830: Product Type.

****: Lot No. Code, code change with Lot No.

