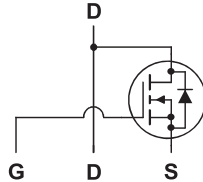


# N Channel Enhancement MOSFET multicomp<sup>PRO</sup>

RoHS  
Compliant



## Features

- $V_{DS}$  (V) = 100V
- $I_D$  = 2.8 A ( $V_{GS}$  = 10V)
- $R_{DS(ON)}$  < 285m $\Omega$  ( $V_{GS}$  = 10V)
- $R_{DS(ON)}$  < 305m $\Omega$  ( $V_{GS}$  = 6)

## Absolute Maximum Ratings ( $T_a$ =25°C)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		$V_{DS}$	150	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	
Continuous Drain Current @ $V_{GS}$ =10V	$T_a$ =25°C (Note.1)	$I_D$	2.8	A
			12	
Power Dissipation	$T_a$ =25°C (Note.1)	$P_D$	2.2	W
	$T_a$ =25°C (Note.2)		1	
Single Pulsed Avalanche Energy (Note.3)		$E_{AS}$	12	mJ
Thermal Resistance. Junction- to-Ambient		$R_{thJA}$	55	°C/W
Thermal Resistance. Junction- to-Case		$R_{thJC}$	12	
Junction Temperature		$T_J$	150	°C
Storage Temperature Range		$T_{stg}$	-55 to 150	

Note1: 55°C/W when mounted on a 1 in 2 pad of 2 oz copper

Note2: 118°C/W when mounted on a minimum pad of 2 oz copper

Note3: Starting  $T_J$  = 25°C; N-ch: L = 1 mH,  $I_{AS}$  = 5 A,  $V_{DD}$  = 135 V,  $V_{GS}$  = 10 V.

## Electrical Characteristics $T_a$ = 25°C

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{DSS}$	$I_D$ =250 $\mu$ A, $V_{GS}$ =0V	150			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}$ =120V, $V_{GS}$ =0V			1	$\mu$ A
Gate-Body leakage current	$I_{GSS}$	$V_{DS}$ =0V, $V_{GS}$ = $\pm 20$ V			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}$ = $V_{GS}$ $I_D$ =-250 $\mu$ A	2	3.1	4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}$ =10V, $I_D$ =2.8A			285	m $\Omega$
		$V_{GS}$ =6V, $I_D$ =2.4A			305	
		$V_{GS}$ =10V, $I_D$ =2.8A, $T_J$ = 125°C			320	
Forward Transconductance	$g_{FS}$	$V_{DS}$ =10V, $I_D$ =2.8A		4		S

# N Channel Enhancement MOSFET multicomp<sup>PRO</sup>

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=75V, f=1MHz$		295	395	pF
Output Capacitance	$C_{oss}$			33	45	
Reverse Transfer Capacitance	$C_{rss}$			2.4	5	
Gate Resistance	$R_g$			1		$\Omega$
Total Gate Charge	$Q_g$	$V_{GS}=0 \text{ to } 10V, V_{DS}=75V, I_D=2.8A$		4.9	7	nC
		$V_{GS}=0 \text{ to } 5V, V_{DS}=75V, I_D=2.8A$		2.8	4	
Gate Source Charge	$Q_{gs}$	$V_{DS}=75V, I_D=2.8A$		1.4		
Gate Drain Charge	$Q_{gd}$			1.3		
Turn-On DelayTime	$t_{d(on)}$	$I_D=2.8A, V_{DS}=75V, R_{GEN}=6\Omega, V_{DS}=10V$		5.3	11	nS
Turn-On Rise Time	$t_r$			1.3	10	
Turn-Off DelayTime	$t_{d(off)}$			9.8	20	
Turn-Off Fall Time	$t_f$			2.4	10	
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F=2.8A, di/dt=100A/\mu s, V_{GS}=0$		48	77	uS
Body Diode Reverse Recovery Charge	$Q_{rr}$			44	70	
Maximum Body-Diode Continuous Current	$I_S$				2.8	A
Diode Forward Voltage	$V_{SD}$	$I_S=2.8A, V_{GS}=0V$ (Note.1)		0.82	1.3	V

Note.1: .Pulse Test:Pulse width $\leq$ 300us,Duty cycle $\leq$ 2%

## Typical Characteristics

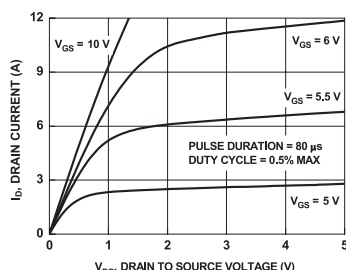


Figure 1. On Region Characteristics

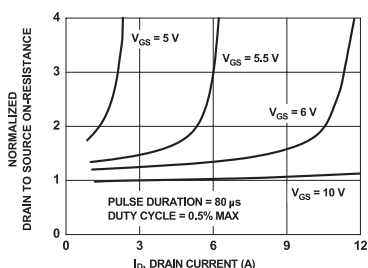


Figure 2. Normalized On-Resistance vs Drain Current and Gate Voltage

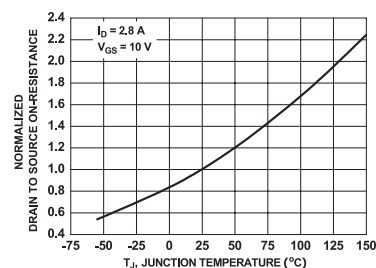


Figure 3. Normalized On Resistance vs Junction Temperature

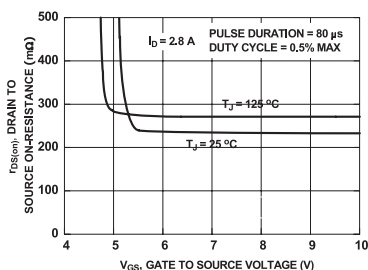


Figure 4. On-Resistance vs Gate to Source Voltage

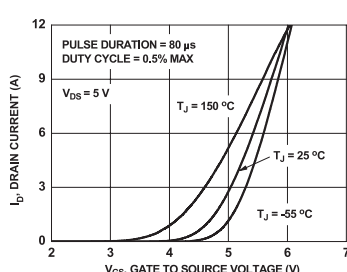


Figure 5. Transfer Characteristics

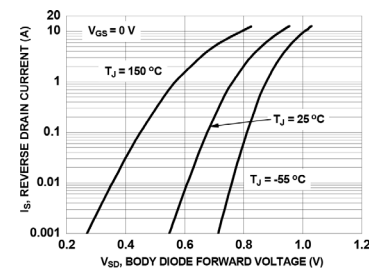


Figure 6. Source to Drain Diode Forward Voltage vs Source Current

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## Typical Characteristics

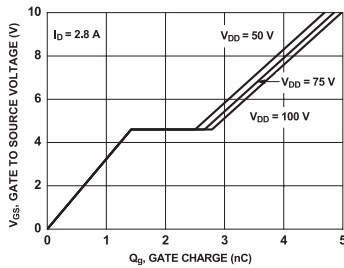


Figure 7. Gate Charge Characteristics

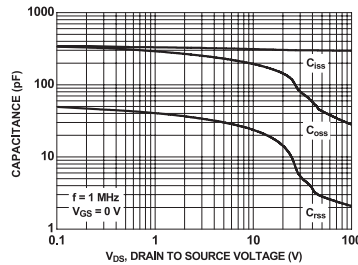


Figure 8. Capacitance vs Drain to Source Voltage

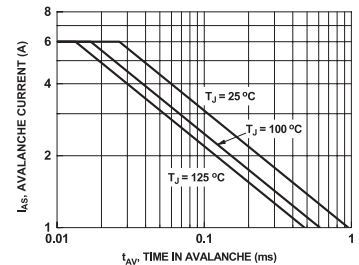


Figure 9. Unclamped Inductive Switching Capability

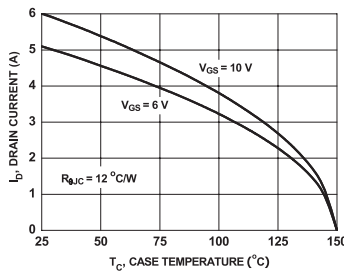
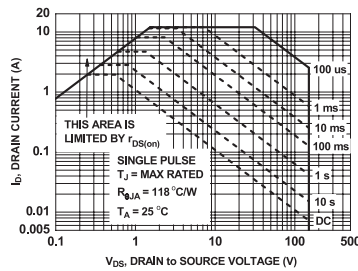


Figure 10. Current vs Case Temperature



Operating Area

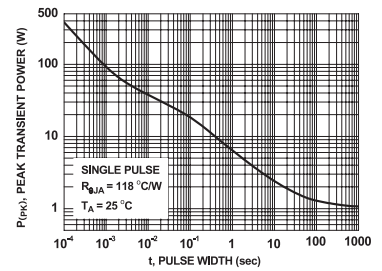


Figure 12. Single Pulse Maximum Power Dissipation

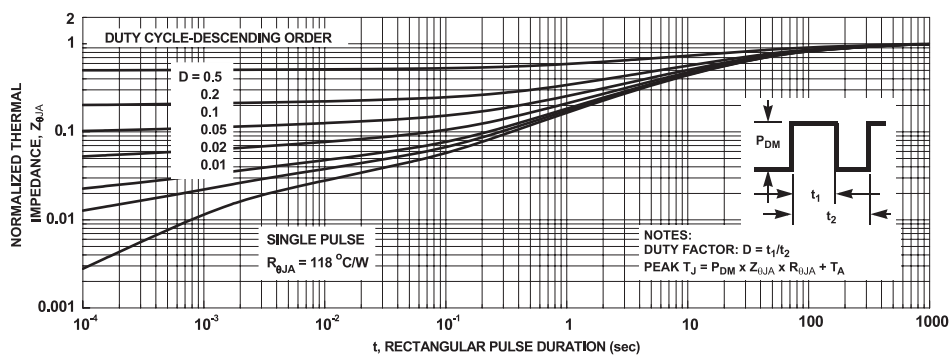
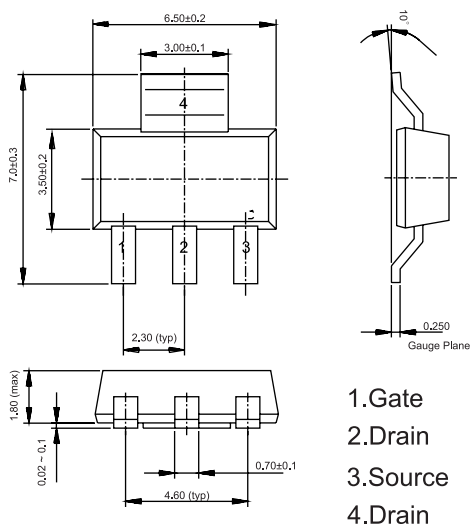


Figure 13. Junction-to-Ambient Transient Thermal Response Curve

# N Channel Enhancement MOSFET **multicomp**PRO

## Diagram



## Part Number Table

Description	Part Number
MOSFET, N Channel, 2.8A, 150V, SOT223	FDT86244

Dimensions : Millimetres

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