



N-Channel 150-V (D-S) 175°C MOSFET

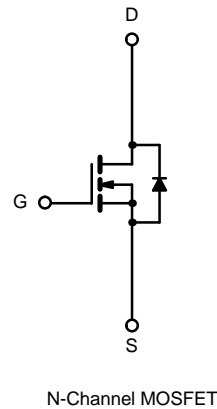
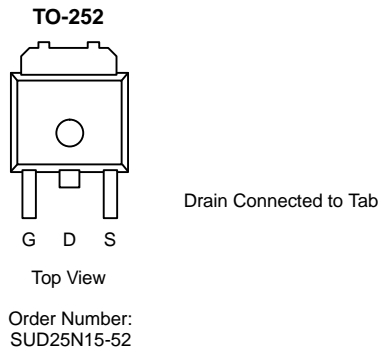
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
150	0.052 @ $V_{GS} = 10$ V	25
	0.060 @ $V_{GS} = 6$ V	23

FEATURES

- TrenchFET® Power MOSFET
- 175°C Junction Temperature
- PWM Optimized

APPLICATIONS

- Primary Side Switch



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ($T_J = 175^\circ\text{C}$) ^b	$T_C = 25^\circ\text{C}$	I_D	25	A
	$T_C = 125^\circ\text{C}$		14.5	
Pulsed Drain Current		I_{DM}	50	
Continuous Source Current (Diode Conduction)		I_S	25	
Avalanche Current		I_{AR}	25	
Repetitive Avalanche Energy (Duty Cycle $\leq 1\%$)	$L = 0.1$ mH	E_{AR}	31	mJ
Maximum Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	100 ^b	W
	$T_A = 25^\circ\text{C}$		3 ^a	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	15	18	$^\circ\text{C/W}$
	Steady State		40	50	
Junction-to-Case (Drain)		R_{thJC}	1.3	1.6	

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- See SOA curve for voltage derating.

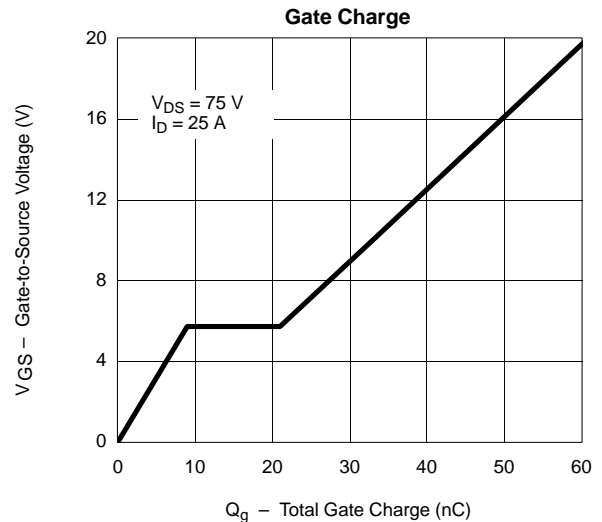
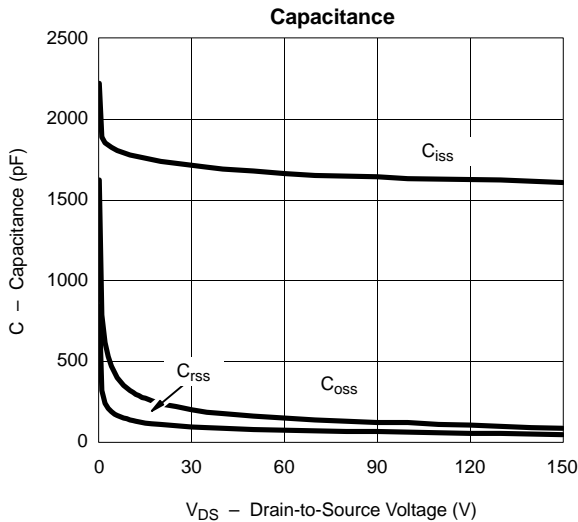
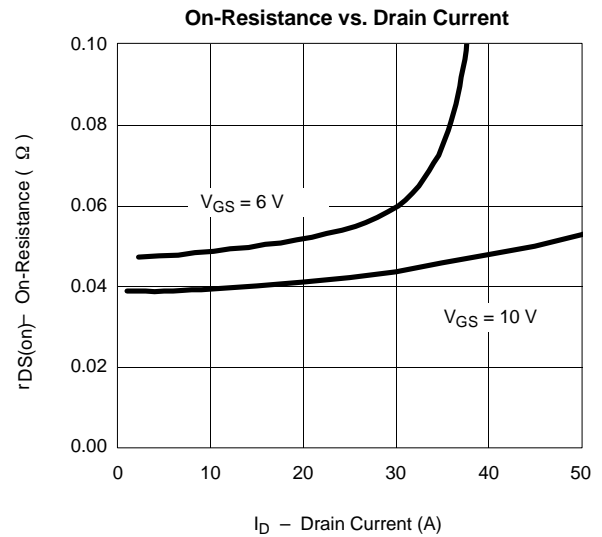
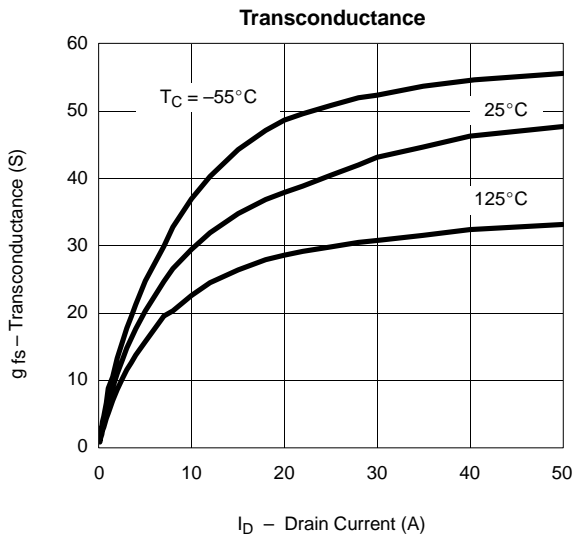
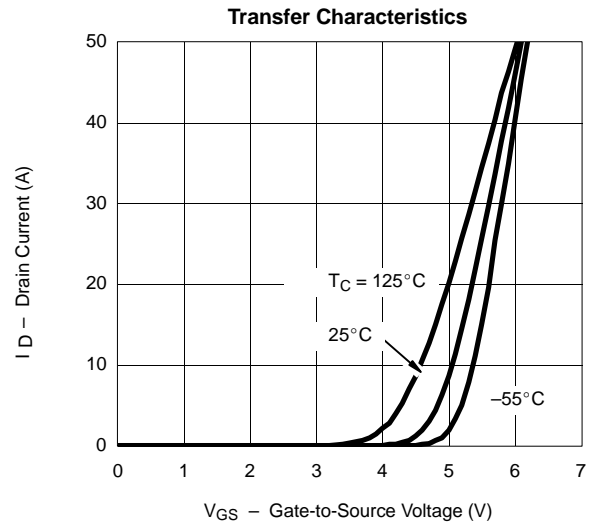
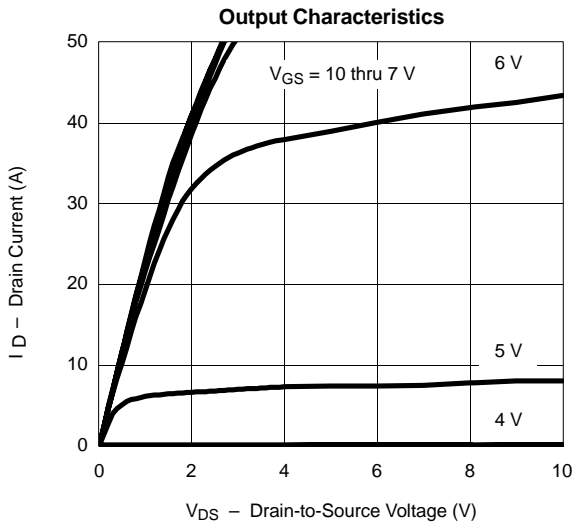
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	150			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	2			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 120\text{ V}, V_{GS} = 0\text{ V}$			1	μA
		$V_{DS} = 120\text{ V}, V_{GS} = 0\text{ V}, T_J = 125^\circ\text{C}$			50	
		$V_{DS} = 120\text{ V}, V_{GS} = 0\text{ V}, T_J = 175^\circ\text{C}$			250	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} = 5\text{ V}, V_{GS} = 10\text{ V}$	50			A
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 5\text{ A}$		0.042	0.052	Ω
		$V_{GS} = 10\text{ V}, I_D = 5\text{ A}, T_J = 125^\circ\text{C}$			0.109	
		$V_{GS} = 10\text{ V}, I_D = 5\text{ A}, T_J = 175^\circ\text{C}$			0.145	
		$V_{GS} = 6\text{ V}, I_D = 5\text{ A}$		0.047	0.060	
Forward Transconductance ^b	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 25\text{ A}$		40		S
Dynamic^a						
Input Capacitance	C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, F = 1\text{ MHz}$		1725		pF
Output Capacitance	C_{oss}			216		
Reverse Transfer Capacitance	C_{rss}			100		
Total Gate Charge ^c	Q_g	$V_{DS} = 75\text{ V}, V_{GS} = 10\text{ V}, I_D = 25\text{ A}$		33	40	nC
Gate-Source Charge ^c	Q_{gs}			9		
Gate-Drain Charge ^c	Q_{gd}			12		
Turn-On Delay Time ^c	$t_{d(on)}$	$V_{DD} = 50\text{ V}, R_L = 3\ \Omega$ $I_D = 25\text{ A}, V_{GEN} = 10\text{ V}, R_G = 2.5\ \Omega$		15	25	ns
Rise Time ^c	t_r			70	100	
Turn-Off Delay Time ^c	$t_{d(off)}$			25	40	
Fall Time ^c	t_f			60	40	
Source-Drain Diode Ratings and Characteristic ($T_C = 25^\circ\text{C}$)						
Pulsed Current	I_{SM}				50	A
Diode Forward Voltage ^b	V_{SD}	$I_F = 25\text{ A}, V_{GS} = 0\text{ V}$		0.9	1.5	V
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 25\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		95	140	ns

Notes

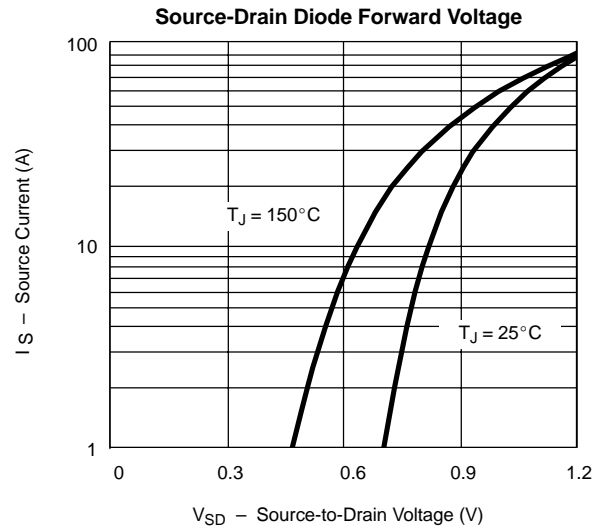
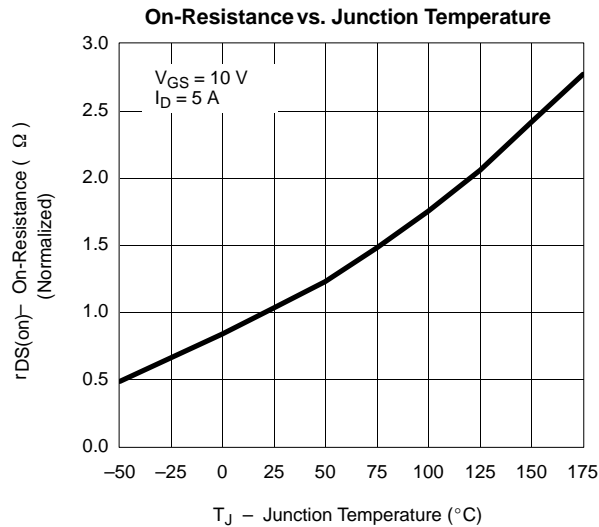
- Guaranteed by design, not subject to production testing.
- Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
- Independent of operating temperature.



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



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THERMAL RATINGS

