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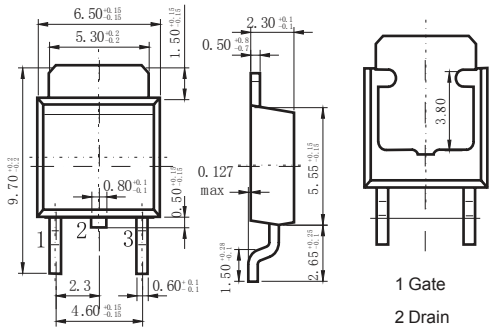
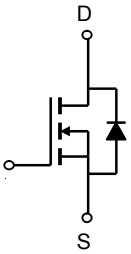
70N03

N-Channel MOSFET

TO-252

Unit: mm





■ Features

- $V_{DS\ (V)}$ = 30V
- I_D = 33A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 4.3mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 6.5mΩ (V_{GS} = 4.5V)

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current (Note.1)	Ta=25℃	I_D	33	A
	Tc=70℃		70	
Pulsed Drain Current		I_{DM}	100	
Power Dissipation	Tc=25℃	P_D	88	W
	Ta=70℃		8.3	
Thermal Resistance.Junction- to-Ambient (Note.1)	t ≤ 10 sec	R_{thJA}	18	℃/W
	Steady State		50	
Thermal Resistance.Junction- to-Case		R_{thJC}	1.5	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

Note.1: Surface Mounted on FR4 Board, t ≤ 10 sec.

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
		V_{DS}=30V, V_{GS}=0V, T_J=125℃			50	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1		3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		3.5	4.3	mΩ
		V_{GS}=10V, I_D=20A T_J=125℃			7	
		V_{GS}=4.5V, I_D=20A		5.1	6.5	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	50			A
Forward Transconductance	g_{FS}	V_{DS}=15V, I_D=20A	20			S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz (Note.1)		5100		pF
Output Capacitance	C_{oss}			860		
Reverse Transfer Capacitance	C_{rss}			430		
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz (Note.1)	0.5	1	1.5	Ω
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=15V, I_D=50A (Note.1)		90	135	nC
Gate Source Charge	Q_{gs}			18		
Gate Drain Charge	Q_{gd}			16		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=0.3Ω, R_G=2.5Ω, I_D=50A (Note.1)		12	20	ns
Turn-On Rise Time	t_r			12	20	
Turn-Off DelayTime	$t_{d(off)}$			40	60	
Turn-Off Fall Time	t_f			10	15	
Body Diode Reverse Recovery Time	t_{rr}	I_F= 50A, dI/dt= 100A/μs		40	80	
Maximum Body-Diode Continuous Current	I_S				8.3	A
Pulsed Current	I_{SM}				100	
Diode Forward Voltage	V_{SD}	I_S=100A, V_{GS}=0V		1.2	1.5	V

Note.1: Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%.

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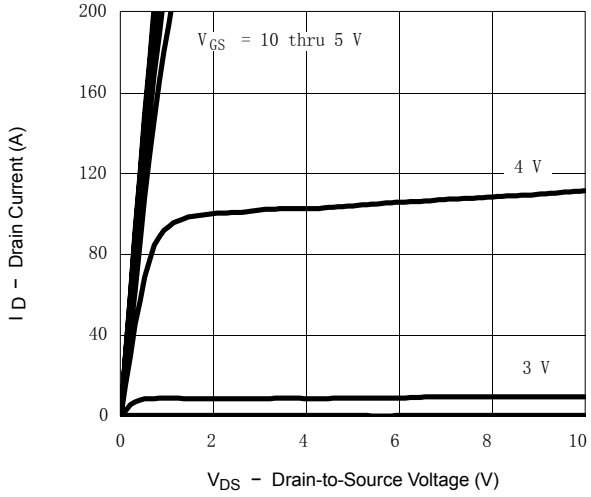
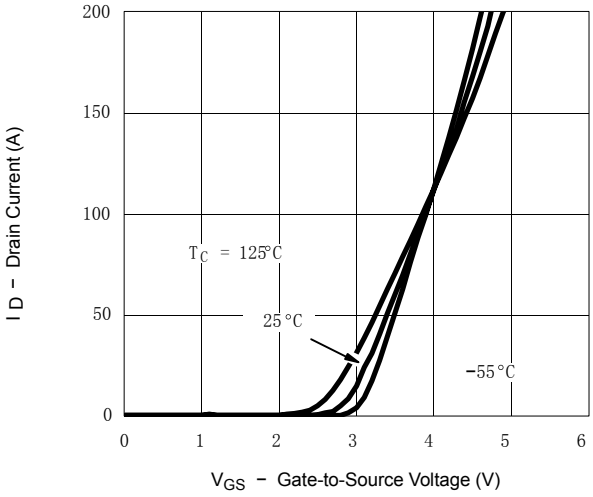
■ Typical Characterisitics

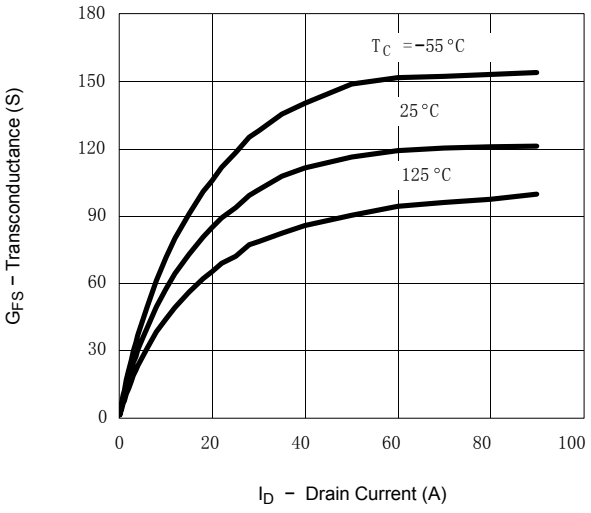
Output Characteristics



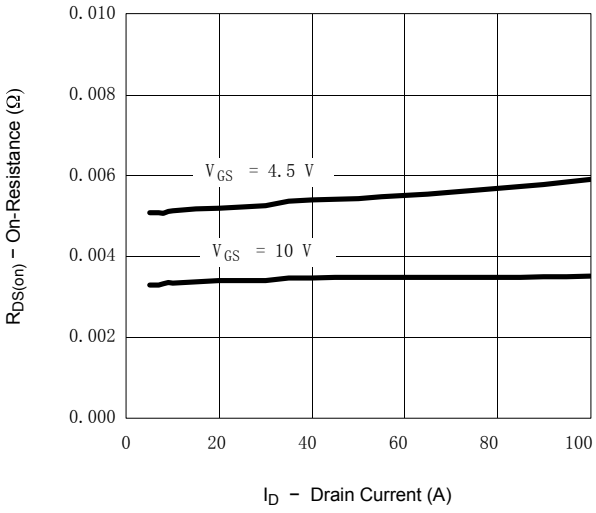
Transfer Characteristics



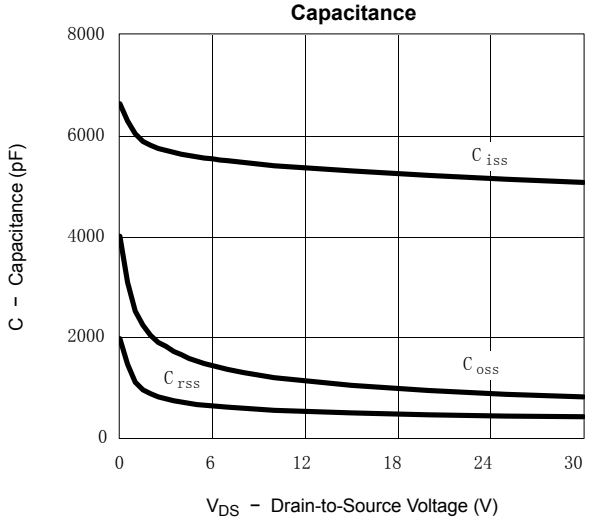
Transconductance



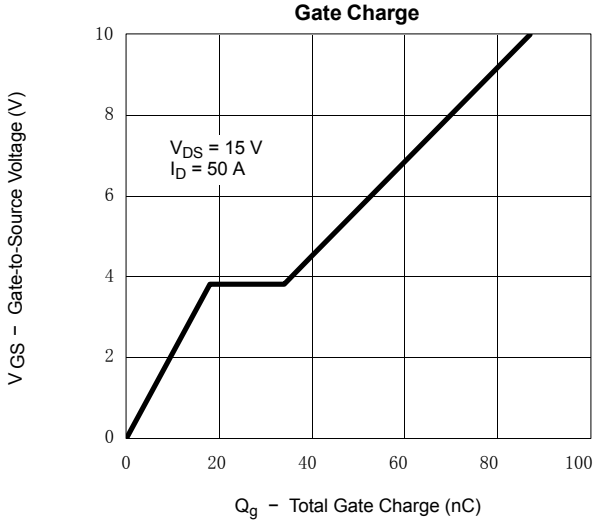
On-Resistance vs. Drain Current



Capacitance



Gate Charge



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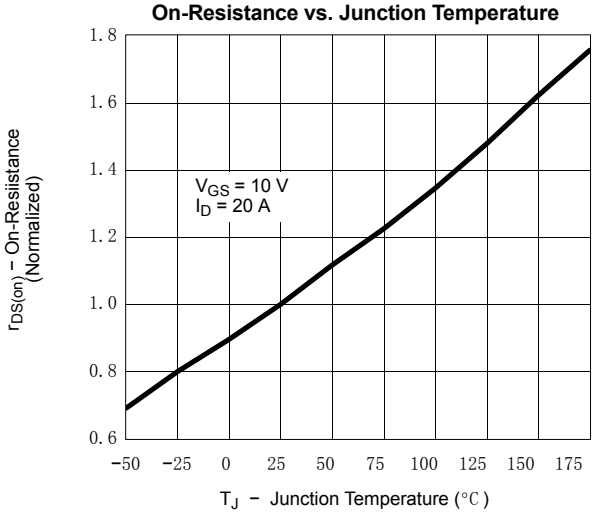
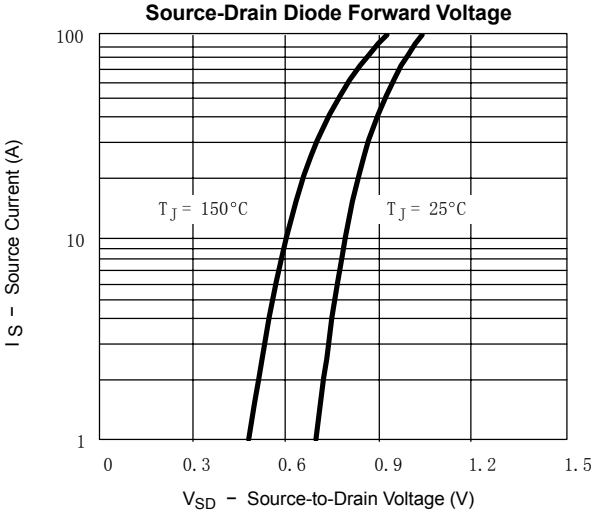
■ Typical Characterisitics

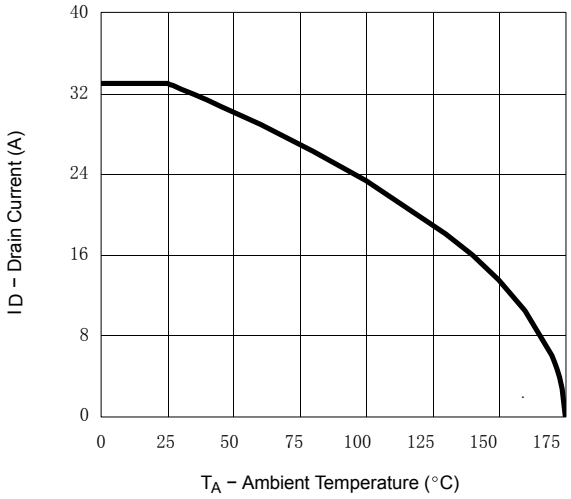
On-Resistance vs. Junction Temperature



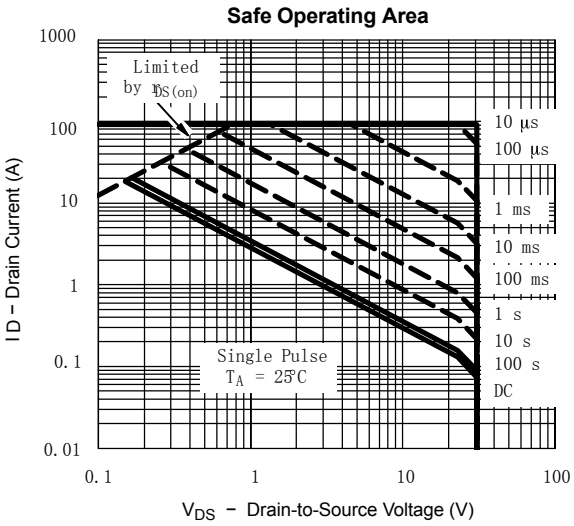
Source-Drain Diode Forward Voltage



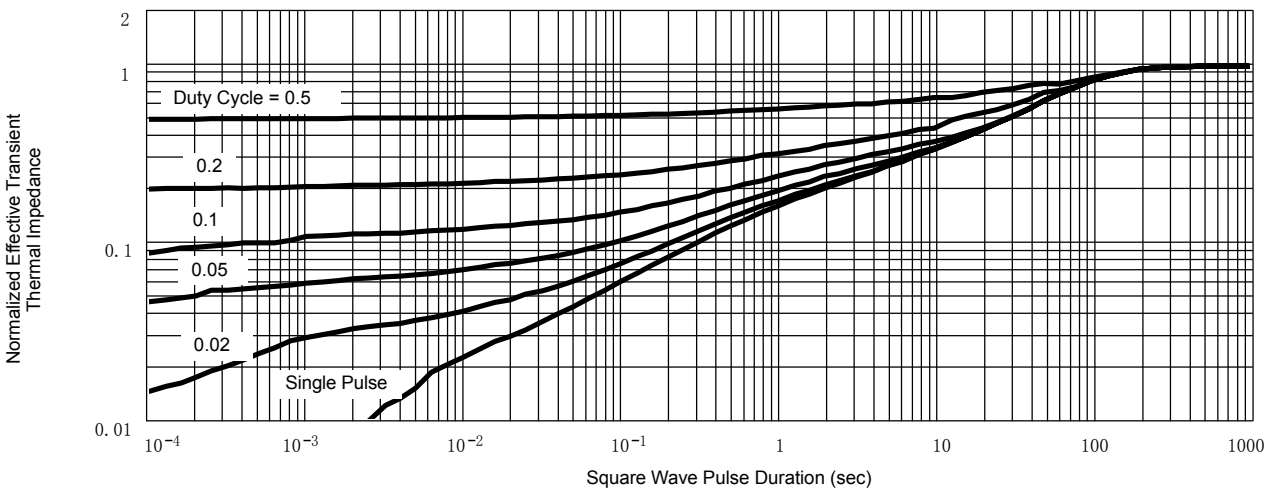
Maximum Avalanche and Drain Current vs. Ambient Temperature



Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient



■ Typical Characterisitics