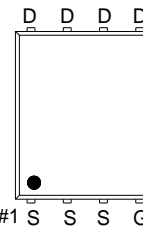
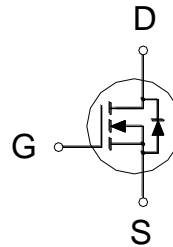




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	3.45m Ω	90A



G. GATE
D. DRAIN
S. SOURCE

100% UIS Tested
100% Rg Tested

Features

- Pb-Free, Halogen Free and RoHS compliant.
- Low $R_{DS(on)}$ to Minimize Conduction Losses.
- Ohmic Region Good $R_{DS(on)}$ Ratio.
- Optimized Gate Charge to Minimize Switching Losses.

Applications

- Protection Circuits Applications.
- Computer for DC to DC Converters Applications.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ⁴	$T_C = 25\text{ }^\circ\text{C}$	I_D	90	A
	$T_C = 100\text{ }^\circ\text{C}$		57	
Pulsed Drain Current ¹		I_{DM}	170	
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	I_D	31	
	$T_A = 70\text{ }^\circ\text{C}$		25	
Avalanche Current		I_{AS}	29	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	42	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	48	W
	$T_C = 100\text{ }^\circ\text{C}$		19	
Power Dissipation ³	$T_A = 25\text{ }^\circ\text{C}$	P_D	5.6	W
	$T_A = 70\text{ }^\circ\text{C}$		3.6	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$t \leq 10s$	$R_{\theta JA}$		22	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		53	
Junction-to-Case	Steady-State	$R_{\theta JC}$		2.6	

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ C$.

³The Power dissipation is based on $R_{\theta JA} t \leq 10s$ value.

⁴The maximum current rating is package limited.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ C$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.9	2.3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 16A$		4	5.5	m Ω
		$V_{GS} = 10V, I_D = 20A$		2.65	3.45	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 20A$		70		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		1572		pF
Output Capacitance	C_{oss}			864		
Reverse Transfer Capacitance	C_{rss}			71		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		0.74		Ω
Total Gate Charge ²	Q_g	$V_{GS} = 10V$	$V_{DS} = 15V, V_{GS} = 10V, I_D = 20A$	32		nC
		$V_{GS} = 4.5V$		17.4		
Gate-Source Charge ²	Q_{gs}	4				
Gate-Drain Charge ²	Q_{gd}	8.8				
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 15V, I_D \cong 20A, V_{GS} = 10V, R_{GEN} = 6\Omega$		15		nS
Rise Time ²	t_r			95		
Turn-Off Delay Time ²	$t_{d(off)}$			43		
Fall Time ²	t_f			111		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)

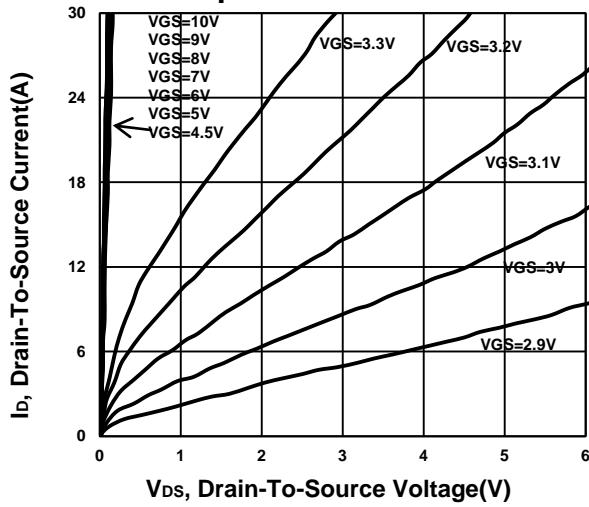
Continuous Current ³	I _S			48	A
Forward Voltage ¹	V _{SD}	I _F = 20A, V _{GS} = 0V		1	V
Reverse Recovery Time	t _{rr}	I _F = 20A, di _F /dt = 100A / μS		36	nS
Reverse Recovery Charge	Q _{rr}			33	nC

¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

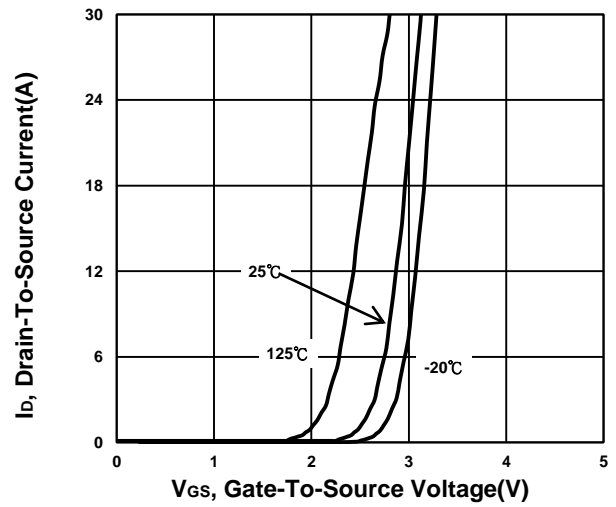
²Independent of operating temperature.

³The maximum current rating is package limited.

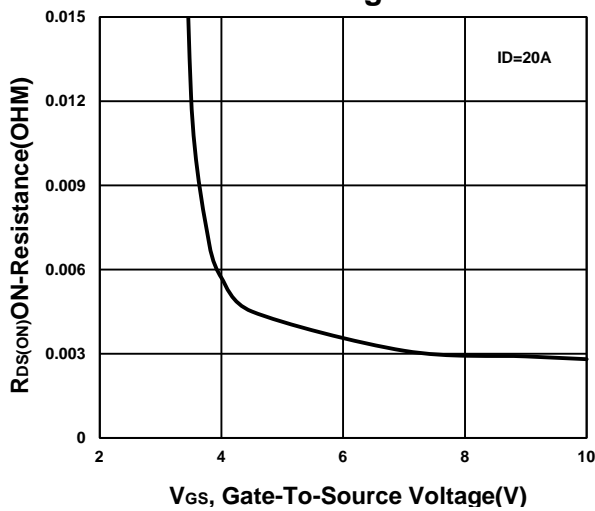
Output Characteristics



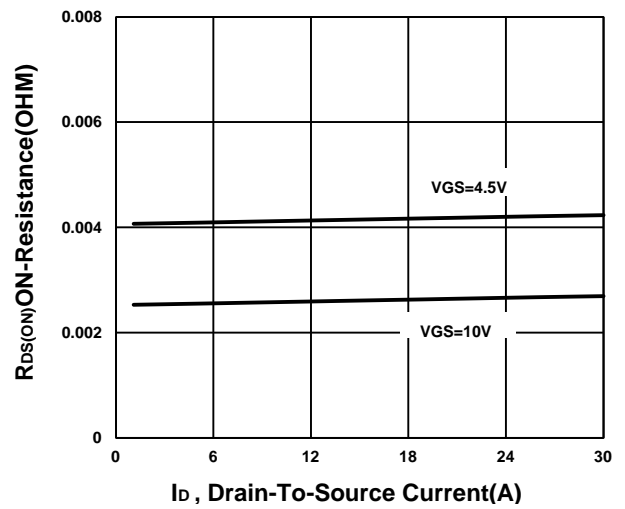
Transfer Characteristics



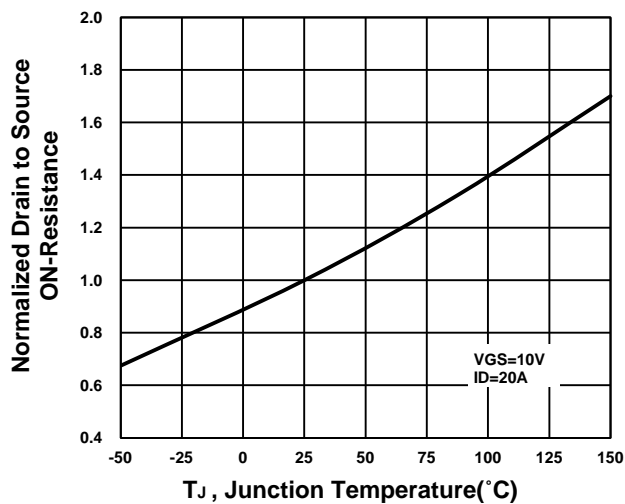
On-Resistance VS Gate-To-Source Voltage



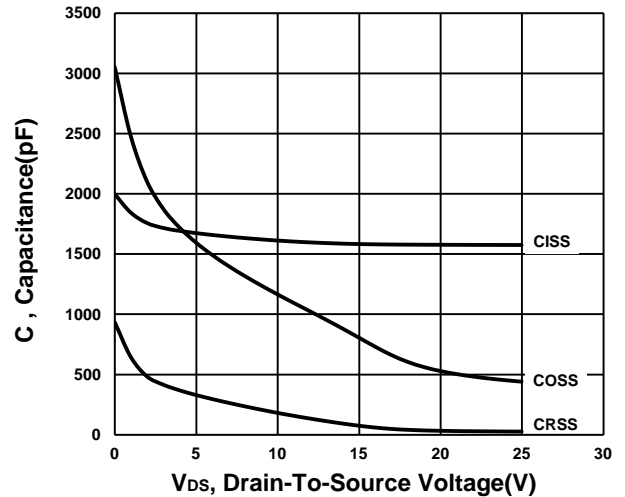
On-Resistance VS Drain Current



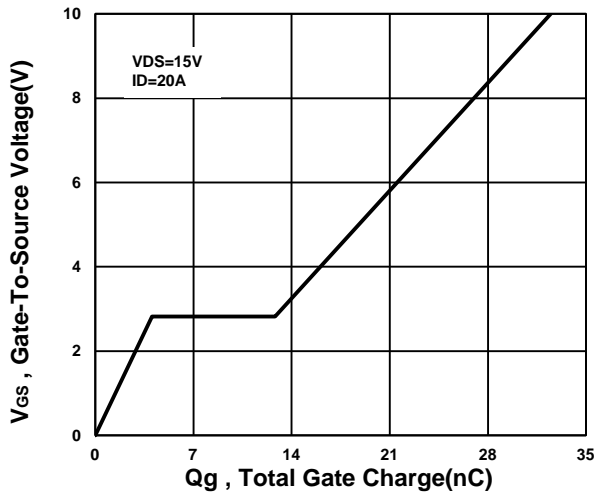
On-Resistance VS Temperature



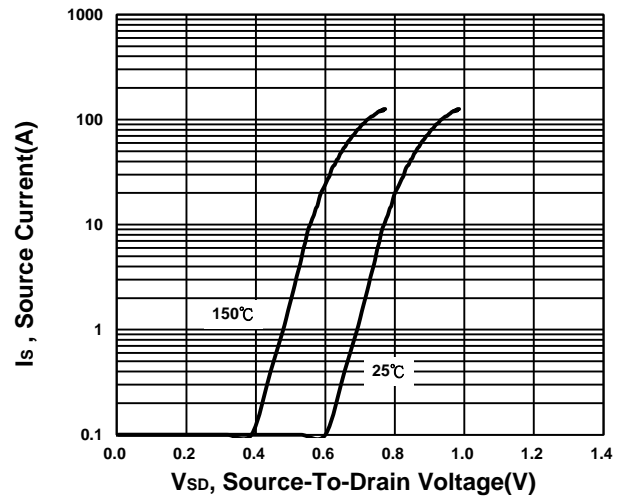
Capacitance Characteristic



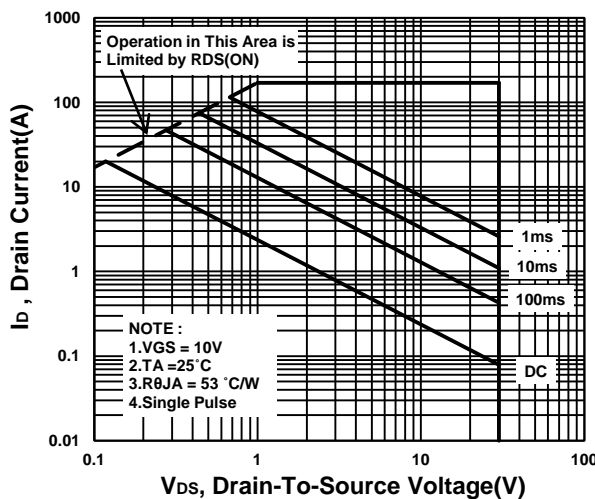
Gate charge Characteristics



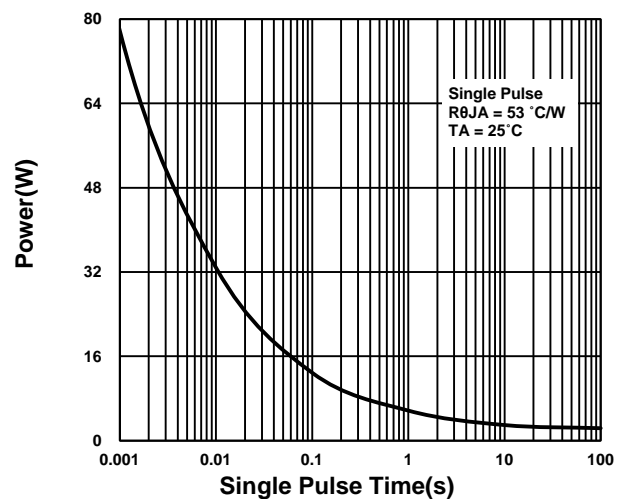
Source-Drain Diode Forward Voltage



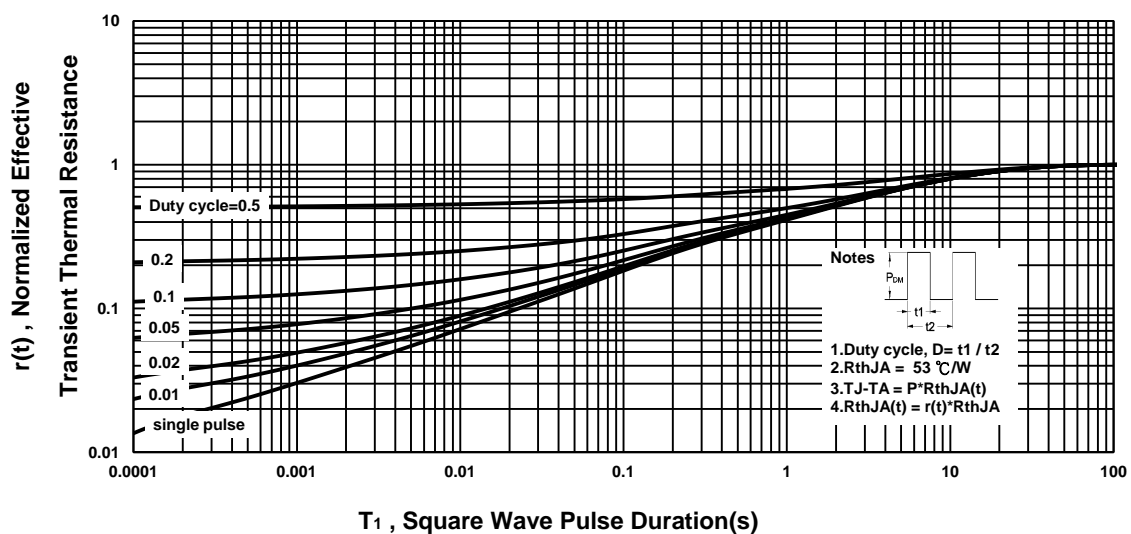
Safe Operating Area



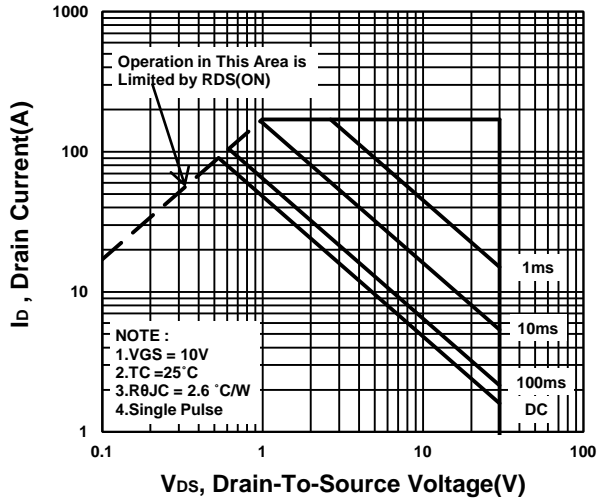
Single Pulse Maximum Power Dissipation



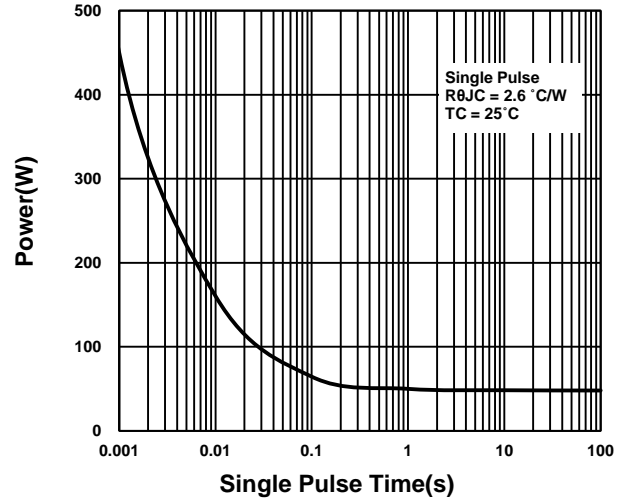
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

