



PRODUCT SUMMARY

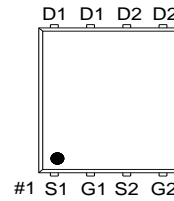
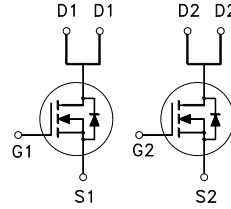
$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	15.5mΩ	24A

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.
- Portable Devices for Battery PACK Applications.



G : GATE
D : DRAIN
S : SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_C = 25\text{ °C}$	I_D	24	A
	$T_C = 100\text{ °C}$		15	
	$T_A = 25\text{ °C}$		6	
	$T_A = 70\text{ °C}$		4.8	
Pulsed Drain Current ¹		I_{DM}	45	
Avalanche Current		I_{AS}	21	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	22	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	28	W
	$T_C = 100\text{ °C}$		11	
	$T_A = 25\text{ °C}$		1.7	
	$T_A = 70\text{ °C}$		1	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$R_{\theta JA}$		75	°C / W
Junction-to-Case	$R_{\theta JC}$		4.5	

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 $T_A = 25\text{ °C}$

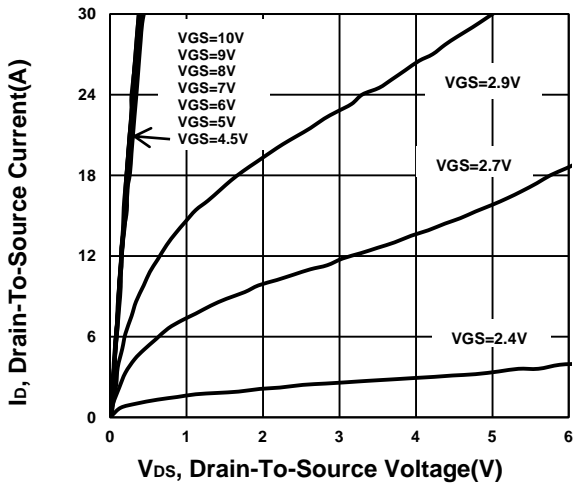
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.6	3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 32V, V _{GS} = 0V			1	μA
		V _{DS} = 30V, V _{GS} = 0V, T _J = 55 °C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 12A		13	20	mΩ
		V _{GS} = 10V, I _D = 18A		11	15.5	
Forward Transconductance ¹	g _{fs}	V _{DS} = 10V, I _D = 18A		55		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 20V, f = 1MHz		909		pF
Output Capacitance	C _{oss}			116		
Reverse Transfer Capacitance	C _{rss}			75		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		2		Ω
Total Gate Charge ²	Q _{g(VGS=10V)}	V _{DS} = 20V, I _D = 18A		19		nC
	Q _{g(VGS=4.5V)}			10		
Gate-Source Charge ²	Q _{gs}			2.4		
Gate-Drain Charge ²	Q _{gd}			5.2		
Turn-On Delay Time ²	t _{d(on)}		V _{DD} = 0V I _D ≅ 18A, V _{GEN} = 10V, R _G = 6Ω		12	
Rise Time ²	t _r			72		
Turn-Off Delay Time ²	t _{d(off)}			36		
Fall Time ²	t _f			118		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current ³	I _S				21	A
Forward Voltage ¹	V _{SD}	I _F = 18A, V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}	I _F = 18A, di _F /dt = 100A / μS		9.2		nS
Reverse Recovery Charge	Q _{rr}			2.9		nC

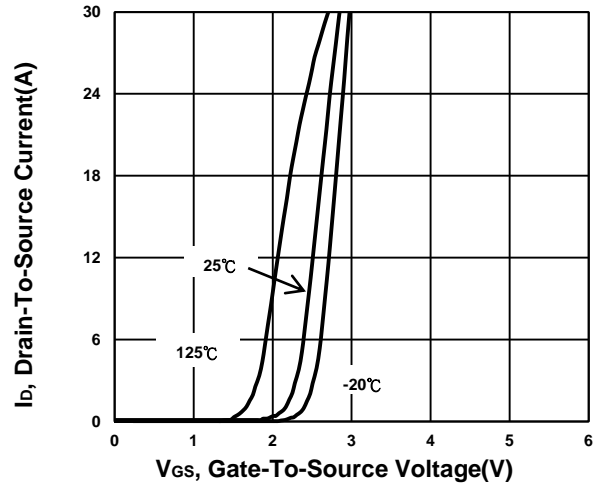
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

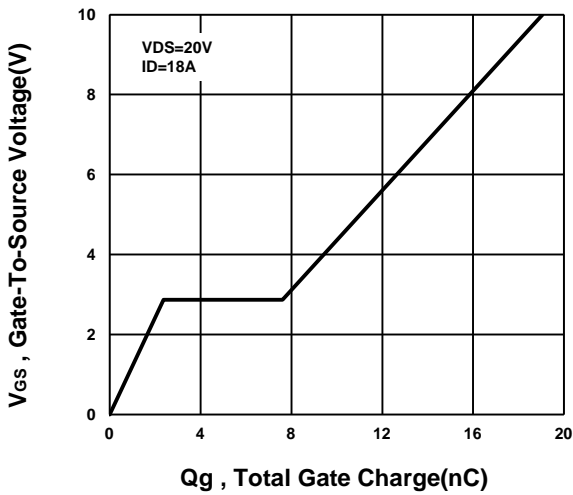
Output Characteristics



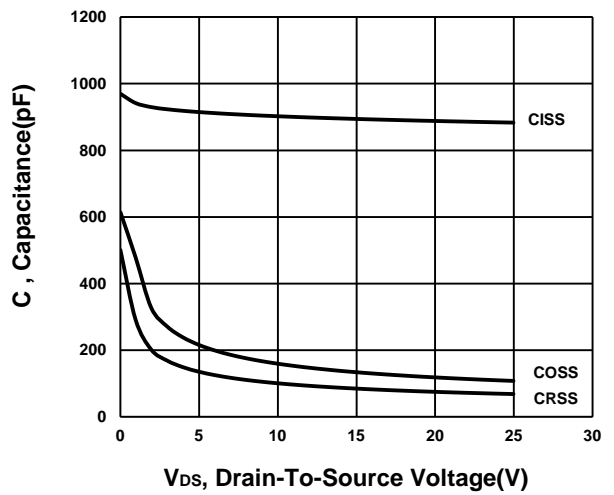
Transfer Characteristics



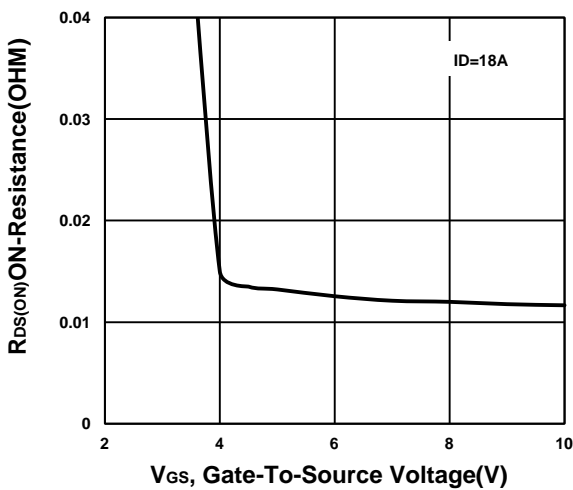
Gate charge Characteristics



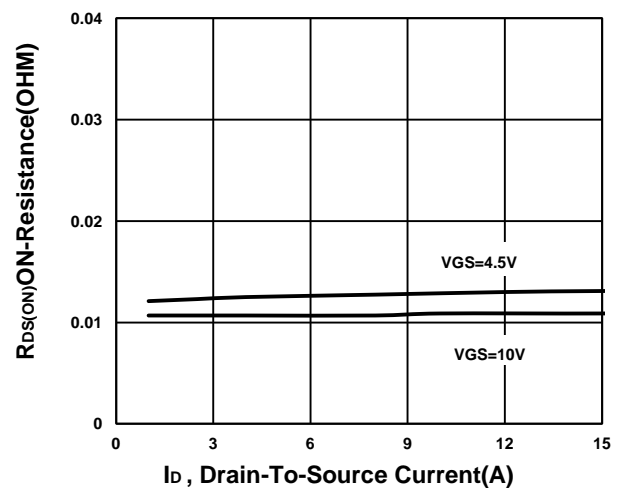
Capacitance Characteristic



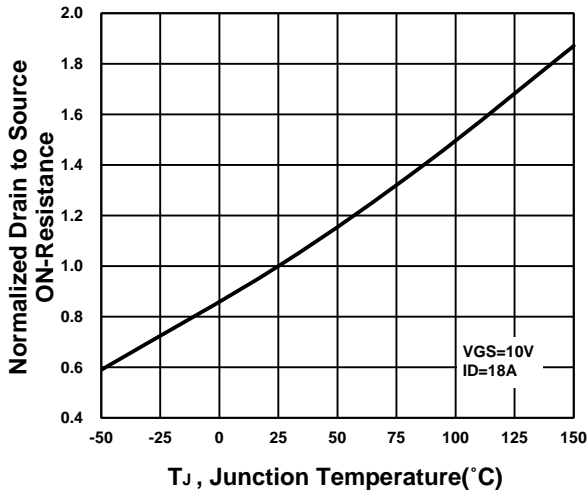
On-Resistance VS Gate-To-Source Voltage



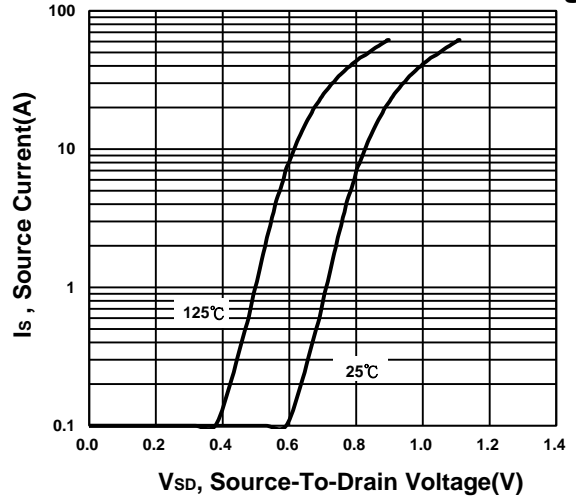
On-Resistance VS Drain Current



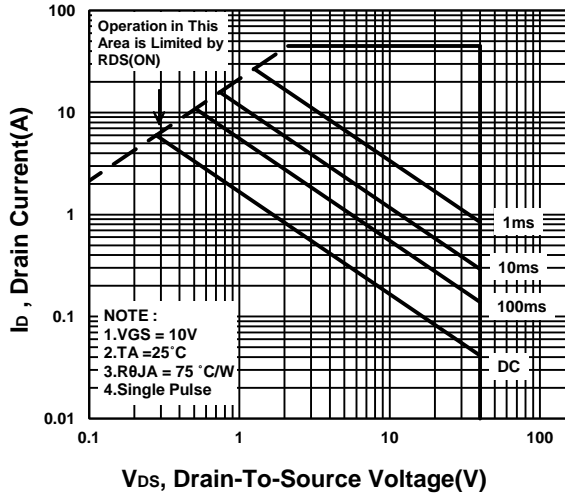
On-Resistance VS Temperature



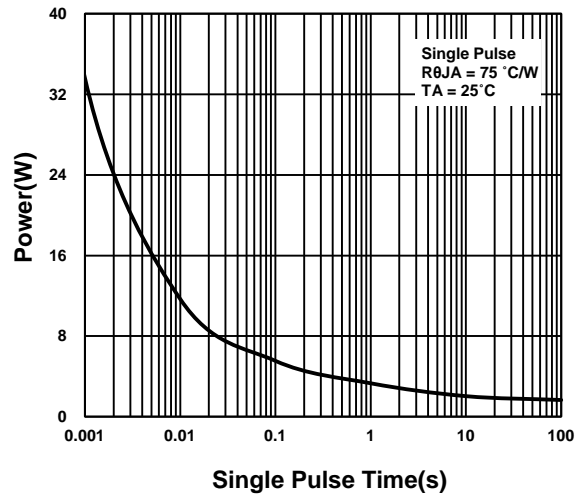
Source-Drain Diode Forward Voltage



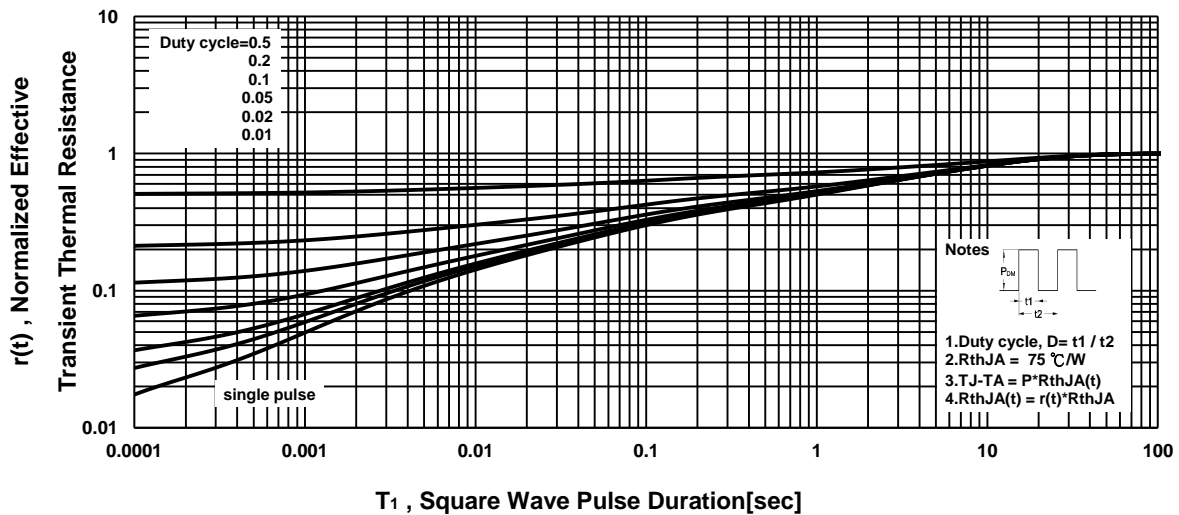
Safe Operating Area



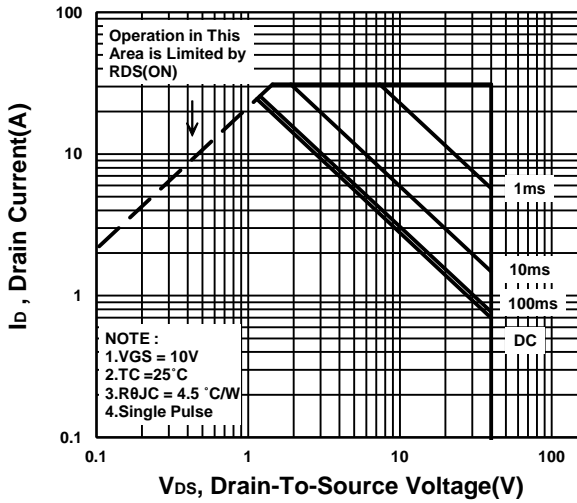
Single Pulse Maximum Power Dissipation



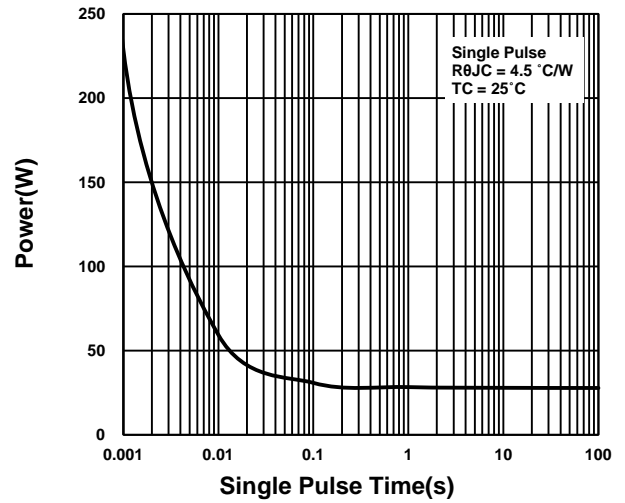
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

