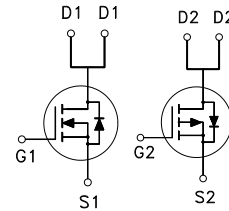




PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
N-Channel	30V	22mΩ	6.5A
P-Channel	-30V	28mΩ	-6A

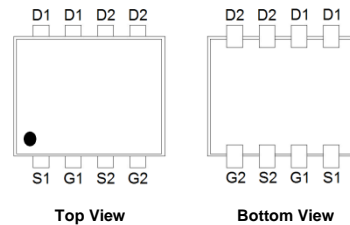


Features

- 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.
- Logic/Load Switch Circuits Applications.



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

PARAMETERS/TEST CONDITIONS		SYMBOL	N-Channel	P-Channel	UNITS
Drain-Source Voltage		V_{DS}	30	-30	V
Gate-Source Voltage		V_{GS}	±20	±20	V
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	6.5	-6	A
	$T_A = 70\text{ °C}$		5.2	-4.7	
Pulsed Drain Current ^{1,4}		I_{DM}	30	-30	
Avalanche Current		I_{AS}	11.4	-19.8	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	6.5	19.6	mJ
Power Dissipation ³	$T_A = 25\text{ °C}$	P_D	1.7	1.7	W
	$T_A = 70\text{ °C}$		1.1	1.1	
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	t ≤ 10s	R _{θJA}	N-ch		70	°C / W
	Steady-State				107	
Junction-to-Ambient ²	t ≤ 10s	R _{θJA}	P-ch		70	
	Steady-State				110	

¹Pulse width limited by maximum junction temperature.

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

³The Power dissipation is based on R_{θJA} t ≤ 10s value.

⁴Pulse Width ≤ 10 μsec, Duty Cycle ≤ 1%.

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	N-Ch	30		V	
		V _{GS} = 0V, I _D = -250μA	P-Ch	-30			
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	N-Ch	1	1.5	2.5	V
		V _{DS} = V _{GS} , I _D = -250μA	P-Ch	-1	-1.5	-2.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	N-Ch			±100	nA
		V _{DS} = 0V, V _{GS} = ±20V	P-Ch			±100	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V	N-Ch			1	μA
		V _{DS} = -24V, V _{GS} = 0V	P-Ch			-1	
		V _{DS} = 24V, V _{GS} = 0V, T _J = 55 °C	N-Ch			10	
		V _{DS} = -24V, V _{GS} = 0V, T _J = 55 °C	P-Ch			-10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 6A	N-Ch		22	32	mΩ
		V _{GS} = -4.5V, I _D = -5A	P-Ch		32	45	
		V _{GS} = 10V, I _D = 6.5A	N-Ch		16	22	
		V _{GS} = -10V, I _D = -6A	P-Ch		22	28	
Forward Transconductance ¹	g _{fs}	V _{DS} = 10V, I _D = 6.5A	N-Ch		32		S
		V _{DS} = -10V, I _D = -6A	P-Ch		17		

DYNAMIC ³							
Input Capacitance	C _{iss}		N-Ch	265	332	398	
			P-Ch	729	912	1094	
Output Capacitance	C _{oss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz	N-Ch	56	70	84	pF
		P-Channel	P-Ch	116	146	175	
Reverse Transfer Capacitance	C _{rss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz	N-Ch	27	45	63	
			P-Ch	74	124	173	
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz	N-Ch	0.1	2.9	5.8	Ω
			P-Ch	0.1	11.8	23.6	
Total Gate Charge ²	Q _g	N-Channel V _{DS} = 15V, V _{GS} = 10V, I _D = 6.5A	N-Ch	5.9	7.4	8.9	nC
Gate-Source Charge ²	Q _{gs}	P-Channel	N-Ch	0.4	0.6	0.8	
		V _{DS} = -15V, V _{GS} = -10V, I _D = -6A	P-Ch	1.2	2	2.8	
Gate-Drain Charge ²	Q _{gd}		N-Ch	1.3	2.1	2.9	
			P-Ch	3.1	5.1	7.1	
Turn-On Delay Time ²	t _{d(on)}	N-Channel V _{DS} = 15V, I _D ≅ 6.5A, V _{GS} = 10V, R _{GEN} = 6Ω	N-Ch		8.4		nS
			P-Ch		12		
Rise Time ²	t _r	P-Channel V _{DS} = -15V, I _D ≅ -6A, V _{GS} = -10V, R _{GEN} = 6Ω	N-Ch		37.4		
			P-Ch		40		
Turn-Off Delay Time ²	t _{d(off)}		N-Ch		19.1		
			P-Ch		89		
Fall Time ²	t _f		N-Ch		46.4		
			P-Ch		80		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _j = 25 °C)							
Continuous Current	I _S		N-Ch			1.5	A
			P-Ch			-1.7	
Forward Voltage ¹	V _{SD}	I _F = 6.5A, V _{GS} = 0V	N-Ch			1.1	V
		I _F = -6A, V _{GS} = 0V	P-Ch			-1	
Reverse Recovery Time	t _{rr}	I _F = 6.5A, dI _F /dt = 100A / μS	N-Ch		7.6		nS
		I _F = -6A, dI _F /dt = 100A / μS	P-Ch		12.4		
Reverse Recovery Charge	Q _{rr}		N-Ch		2.6		nC
			P-Ch		4.5		

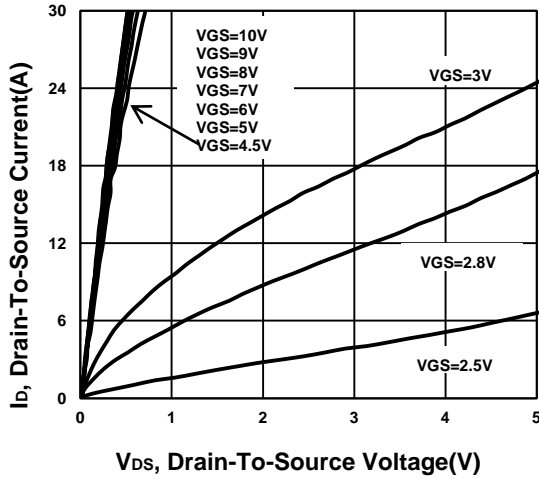
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

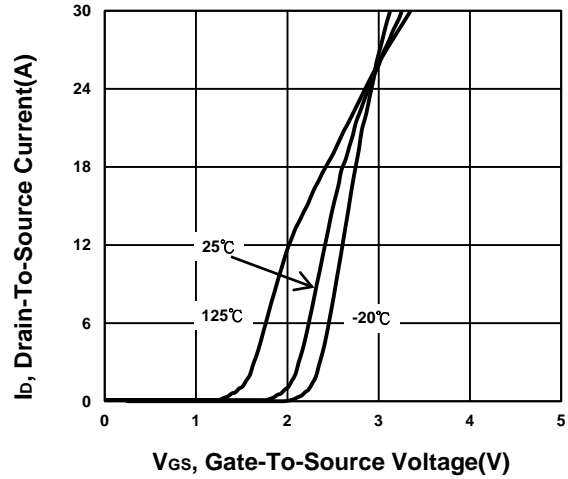
³Guaranteed by design, not subject to production testing.

**TYPICAL PERFORMANCE CHARACTERISTICS
N-CHANNEL**

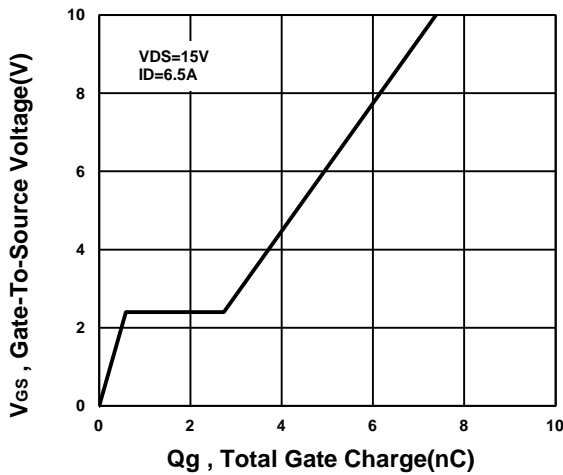
Output Characteristics



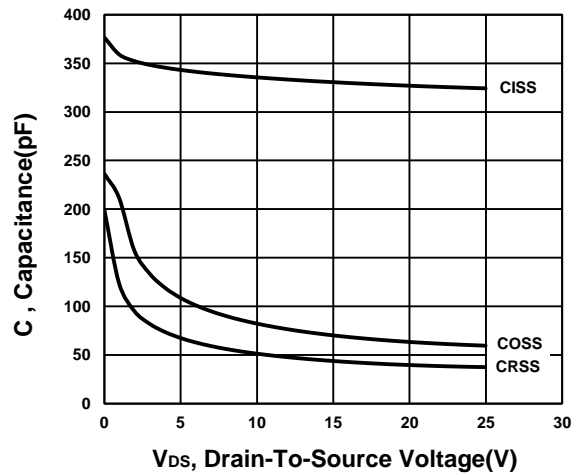
Transfer Characteristics



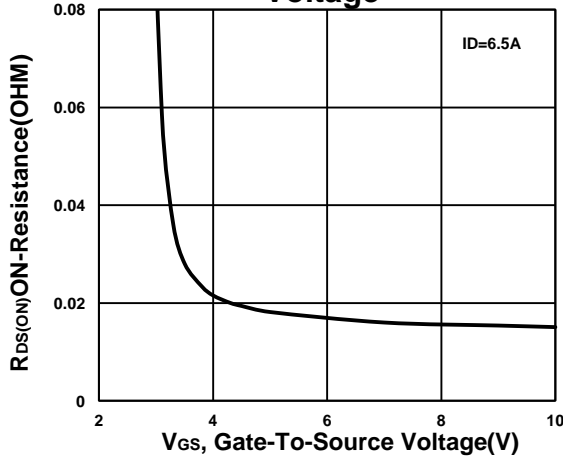
Gate charge Characteristics



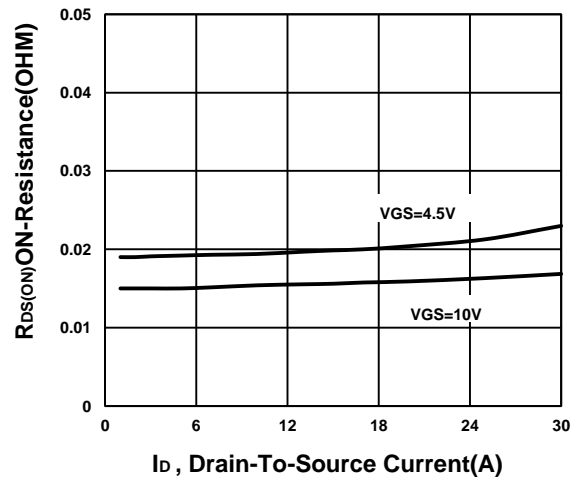
Capacitance Characteristic



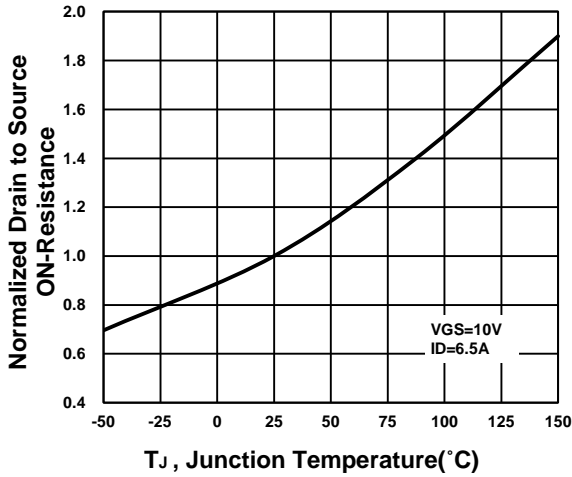
On-Resistance VS Gate-To-Source Voltage



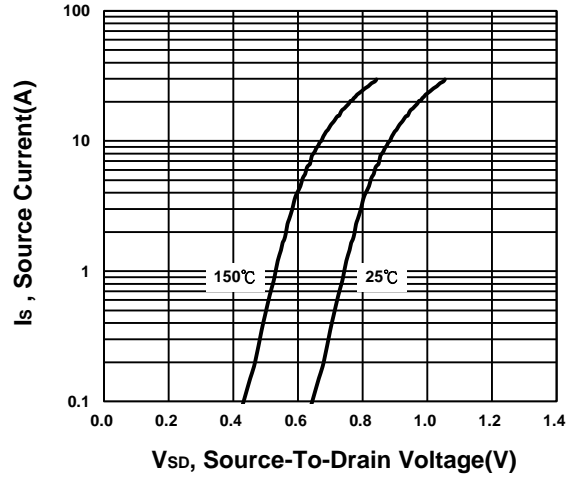
On-Resistance VS Drain Current



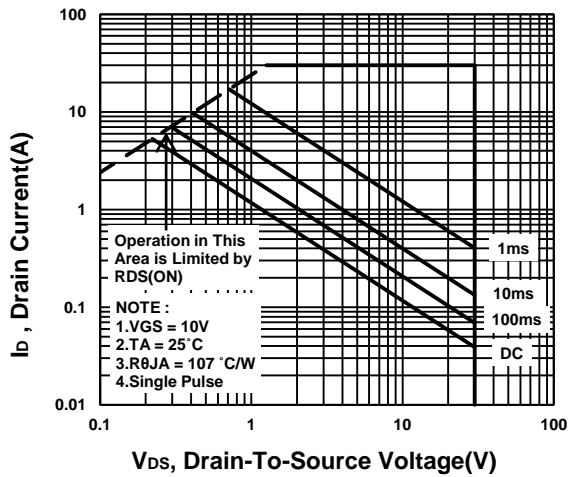
On-Resistance VS Temperature



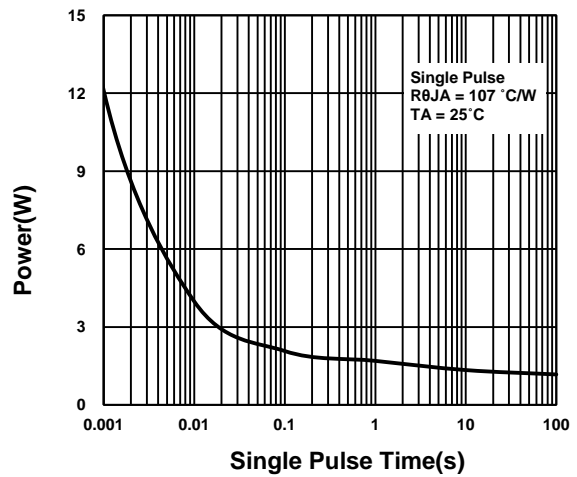
Source-Drain Diode Forward Voltage



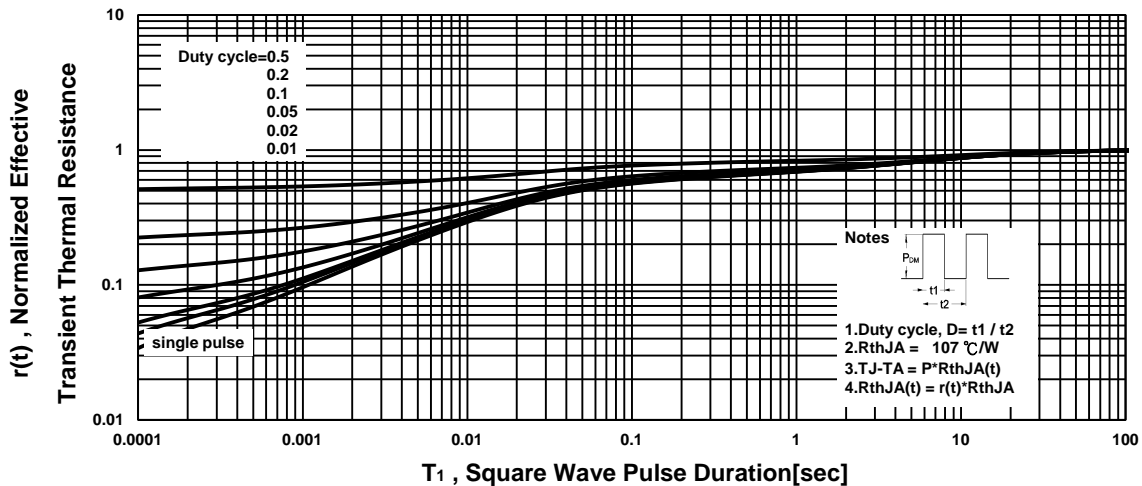
Safe Operating Area



Single Pulse Maximum Power Dissipation

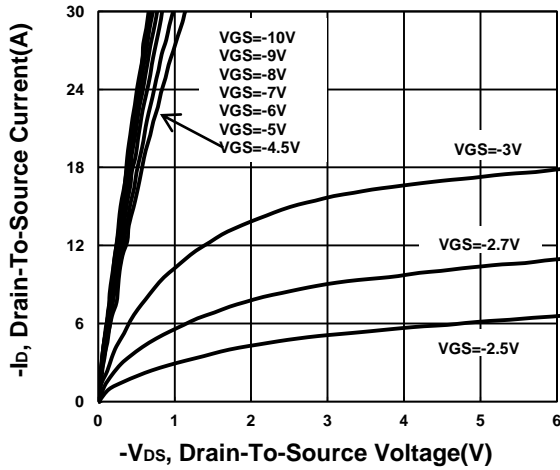


Transient Thermal Response Curve

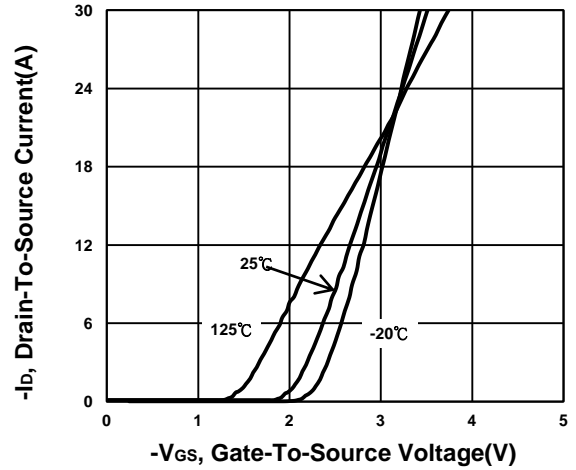


P-CHANNEL

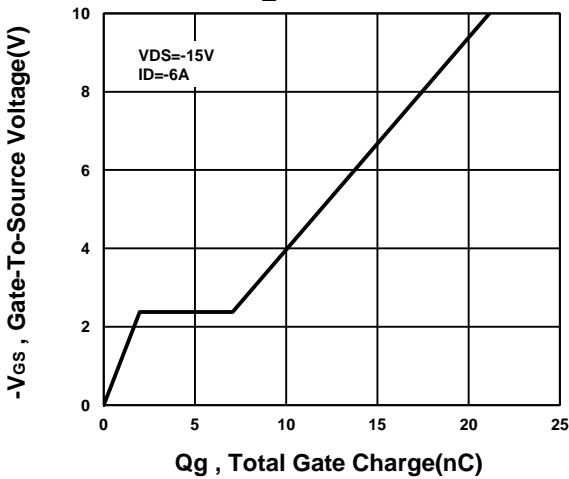
Output Characteristics



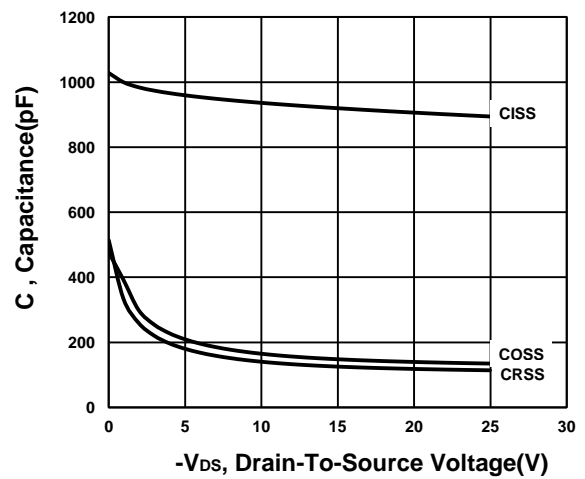
Transfer Characteristics



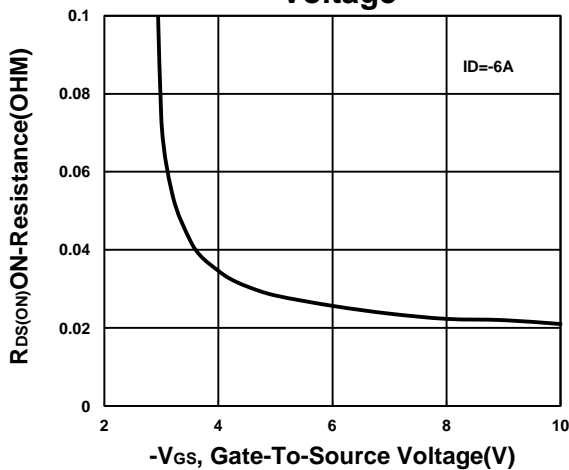
Gate charge Characteristics



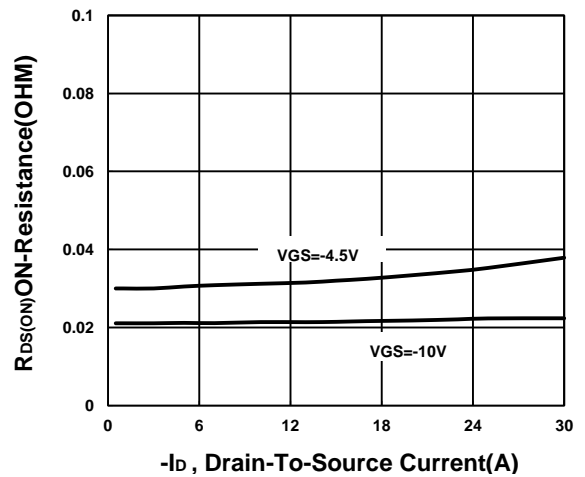
Capacitance Characteristic



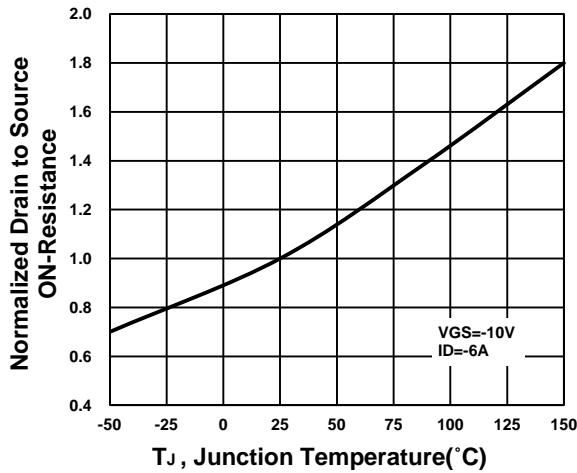
On-Resistance VS Gate-To-Source Voltage



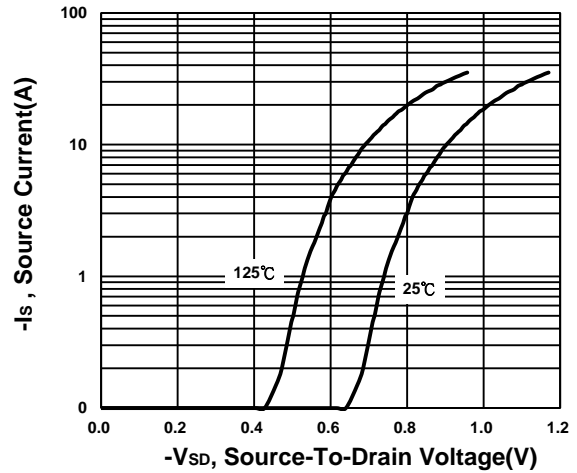
On-Resistance VS Drain Current



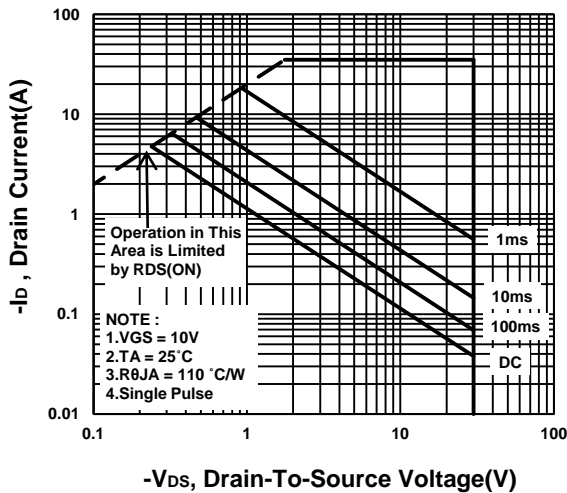
On-Resistance VS Temperature



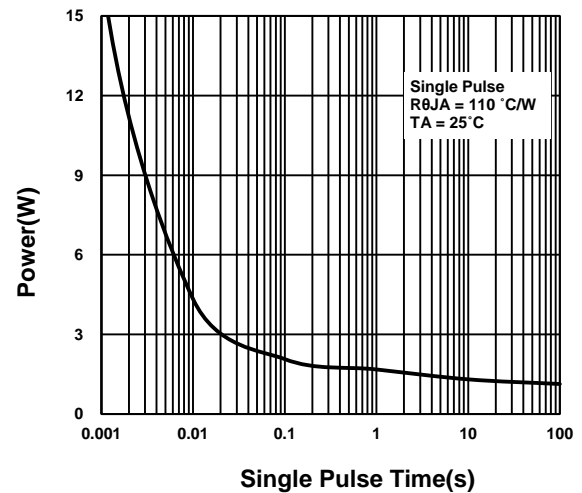
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

