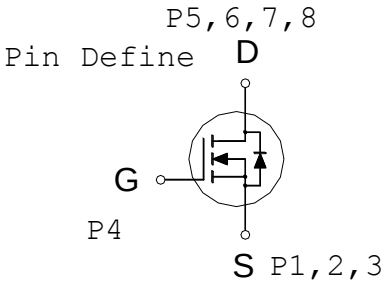
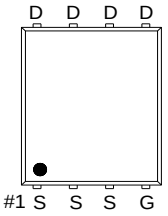
Define page.1
dimension page.5

NIKO-SEM

N-Channel Enhancement Mode Field Effect Transistor

PK600BA
PDFN 5x6P
Halogen-Free & Lead-Free





G. GATE
D. DRAIN
S. SOURCE

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	9.5mΩ	40A

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °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[3]	T_C = 25 °C	I_D	40	A
	T_C = 100 °C		25	
Pulsed Drain Current[1]		I_{DM}	100	
Continuous Drain Current	T_A = 25 °C	I_D	10.7	
	T_A = 70 °C		8.6	
Avalanche Current		I_{AS}	18	
Avalanche Energy	L = 0.1mH	E_{AS}	16.2	mJ
Power Dissipation	T_C = 25 °C	P_D	27.8	W
	T_C = 100 °C		11	
Power Dissipation	T_A = 25 °C	P_D	2	W
	T_A = 70 °C		1.3	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

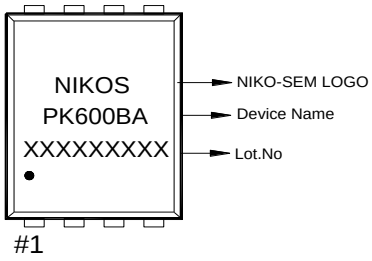
THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient[2]	$R_{\theta JA}$		63	°C / W
Junction-to-Case	$R_{\theta JC}$		4.5	

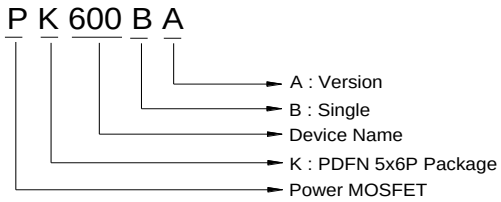
[1]Pulse width limited by maximum junction temperature.
[2]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
[3]Package limitation current is 20A.

Marking Information:(Please see the corresponding data sheet)

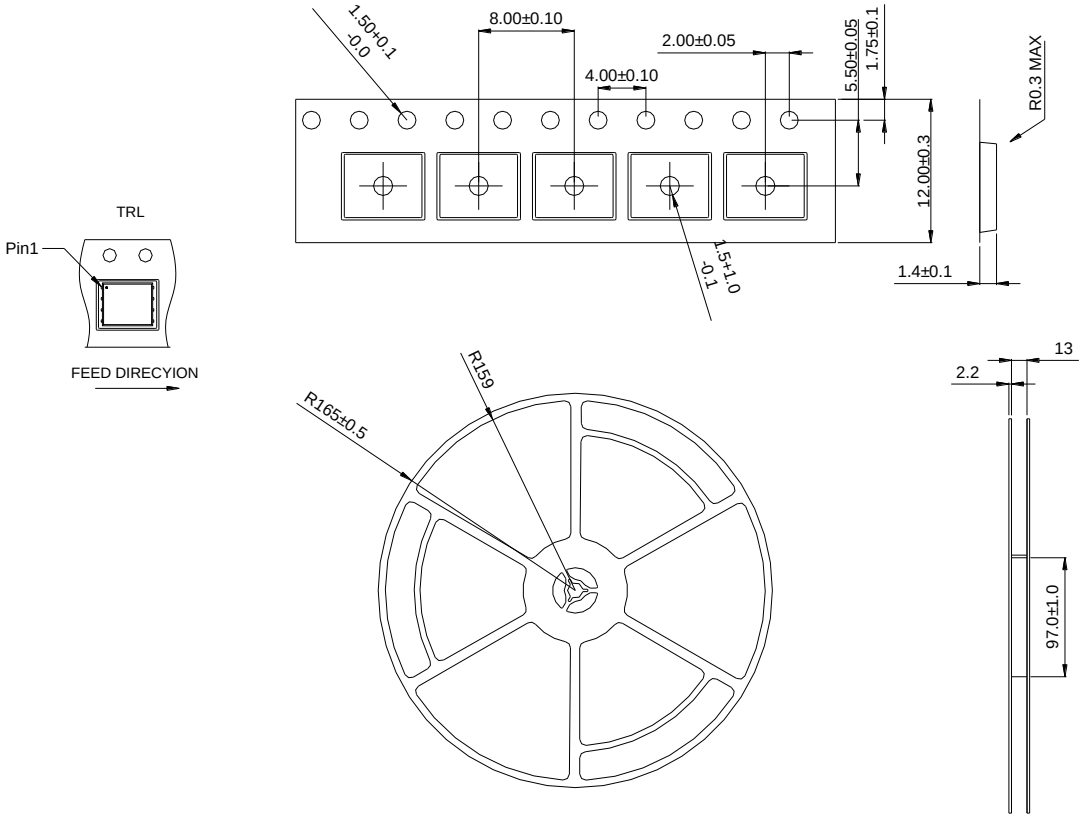
1.Part Marking



2. Part number



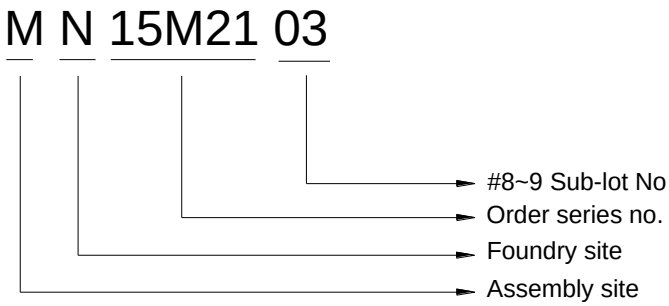
Tape&Reel Information:3000pcs/Reel



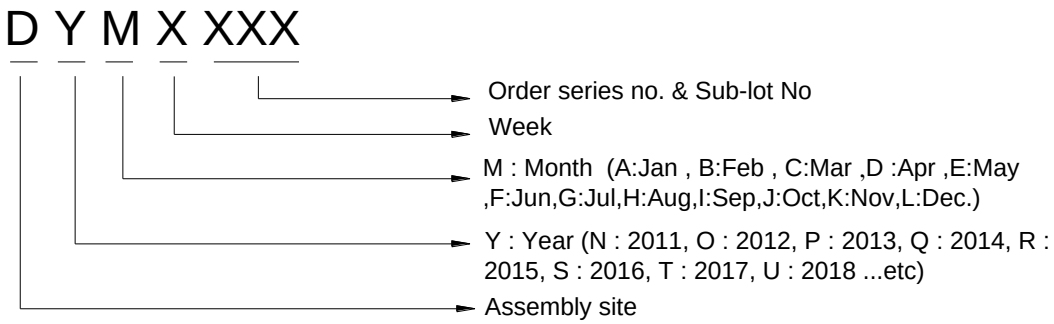
附註:All Dimension in milimeter

Lot.No. & Date Code rule

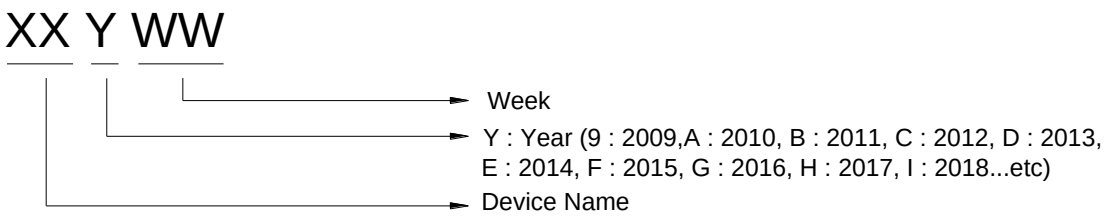
1.LOT.NO.



2.Date Code



3.Date Code (for Small package)



Label rule

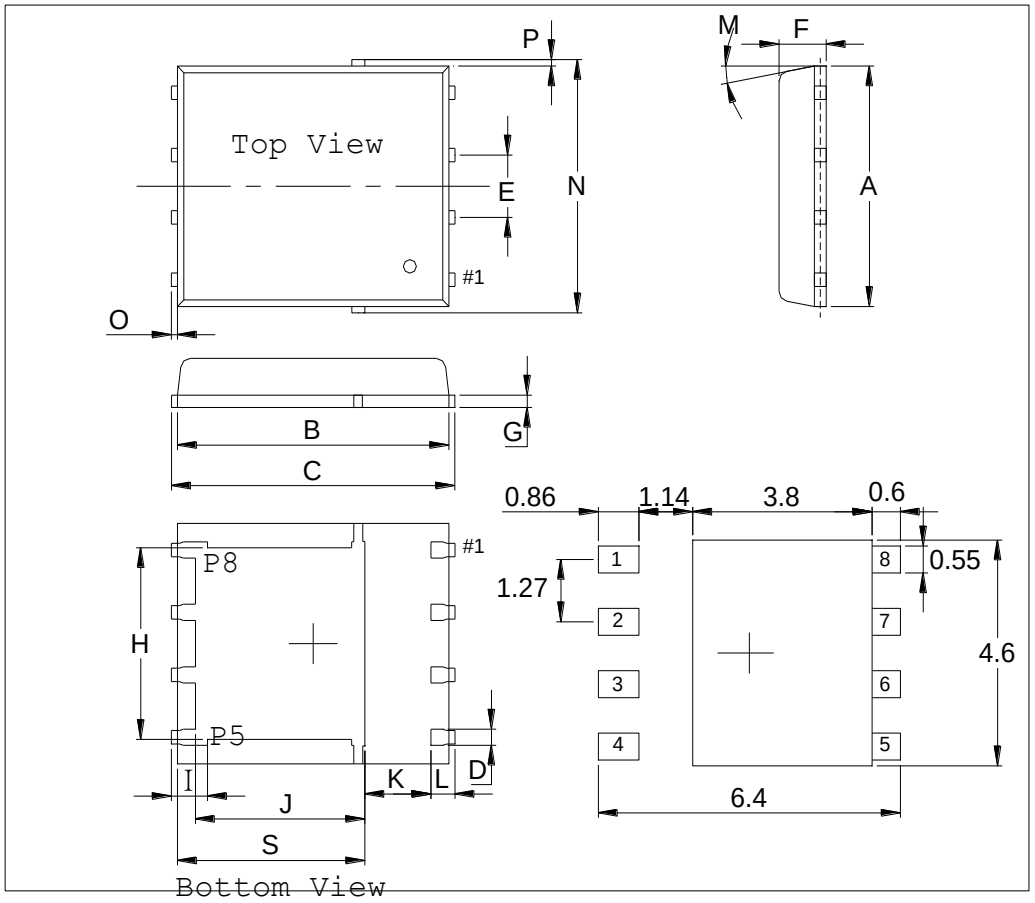
標籤內容 (Label content)

1	Label Size	30 * 90 mm
2	Font style	Times New Roman or Arial (或可區分英文"O"和數字"0"，"G 和"Q"的字型即可) (Or any font capable of being distinguished for Letter O and digital 0, and for G and Q))
3	NIKO-SEM	Height: 4 mm
4	NIKO SEMICONDUCTOR CO., LTD.	Height: 1 mm
5	Package	Height: 2 mm
6	Date	Height: 2 mm Shipping date: YYYY/MM/DD, ex. 2008/09/12
7	Device	Height: 3 mm (Max: 16 Digit) Device Name not including Rev.
8	Lot	Height: 3 mm (Max: 9 Digit) Sub lot
9	D/C	Height: 3 mm (Max: 7 Digit)
10	QTY	Height: 3 mm (Max: 6 Digit) Thousand mark is no needed
11	Pb Free label	Pb Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
12	Halogen Free label	G Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
13	Scan info	Device / Lot / D/C / QTY , Insert " / " between every parts. for example: P3055LDG/G12345601/GGG2301/2000 DPI (Dots per inch): Over 300 dpi Code : Code 128 Height: 6 mm at least

Package Dimension

PDFN 5x6P MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8		5.15	J	3.34		3.9
B	5.42		5.9	K	0.9		
C	5.9		6.35	L	0.38		0.711
D	0.3		0.51	M	0°		12°
E	1.17	1.27	1.37	N	4.8		5.4
F	0.8	1	1.2	O	0.05		0.36
G	0.15		0.35	P	0.05		0.25
H	3.67		4.31	S	3.73		4.19
I	0.38		0.71				

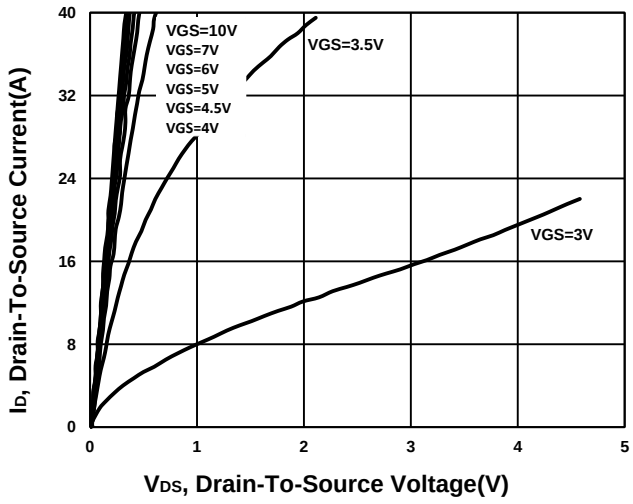


ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

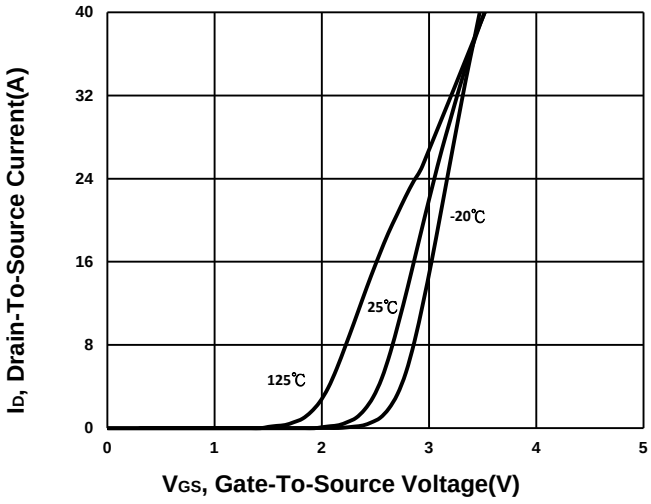
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.3	1.75	2.3	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	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 °C			10	μA
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D =9A		9.7	13.5	mΩ
		V_{GS} = 10V, I_D = 9.5A		7.4	9.5	mΩ
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 9.5A		62		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		608		pF
Output Capacitance	C_{oss}			112		pF
Reverse Transfer Capacitance	C_{rss}			74		pF
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.8		Ω
Total Gate Charge[2]	Q_g (V_{GS} = 10V)	V_{DS} = 15V , V_{GS} = 10V, I_D = 9.5A		14		nC
	Q_g (V_{GS} = 4.5V)			7.3		nC
Gate-Source Charge[2]	Q_{gs}			2		nC
Gate-Drain Charge[2]	Q_{gd}			3.7		nC
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 15V , I_D ≅ 9.5A, V_{GS} = 10V, R_{GEN} =6Ω		13		nS
Rise Time[2]	t_r			37		nS
Turn-Off Delay Time[2]	$t_{d(off)}$			48		nS
Fall Time[2]	t_f			25		nS
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				25	A
Forward Voltage[1]	V_{SD}	I_F = 9.5A, V_{GS} = 0V			1.1	V
Reverse Recovery Time	t_{rr}	I_F = 9.5A, dI_F/dt = 100A / μS		11.7		nS
Reverse Recovery Charge	Q_{rr}			3		nC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.
[3]Package limitation current is 20A.

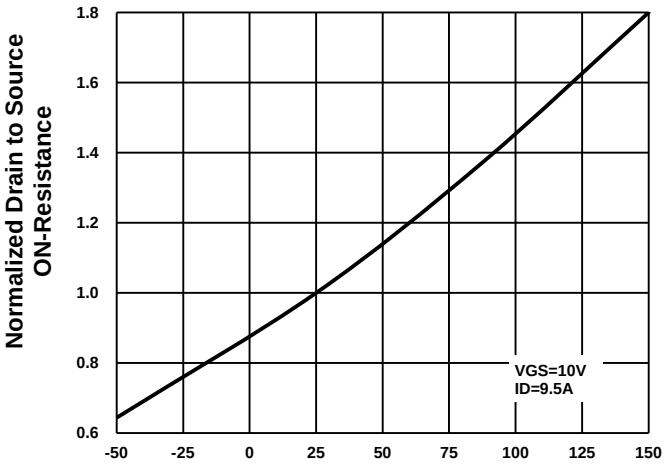
Output Characteristics



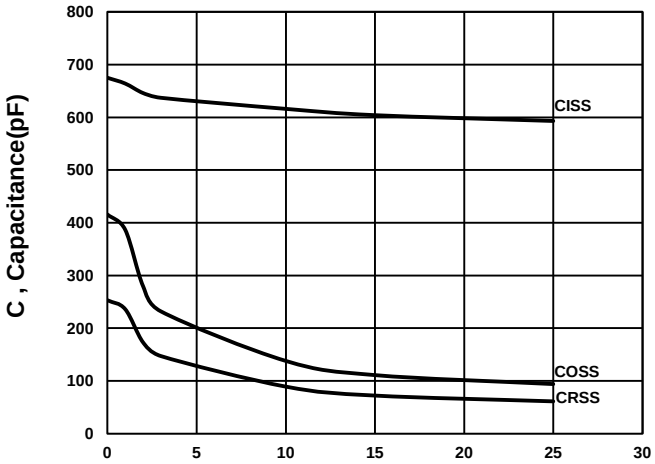
Transfer Characteristics



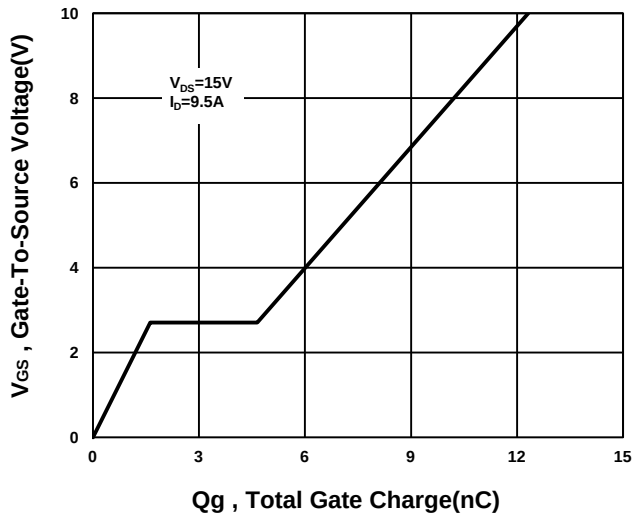
On-Resistance VS Temperature



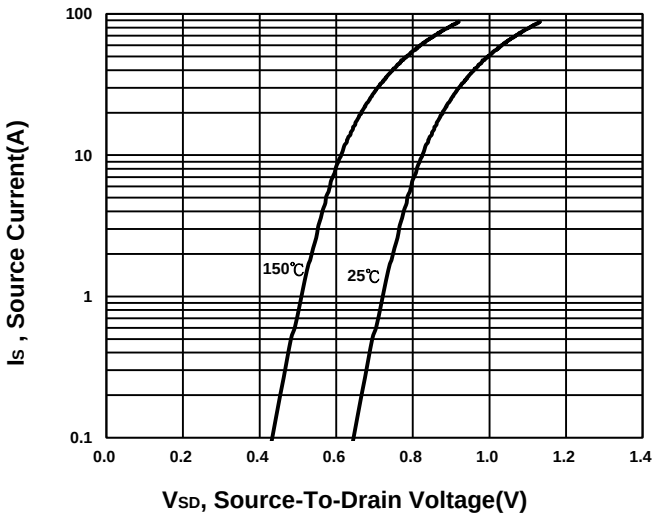
Capacitance Characteristic



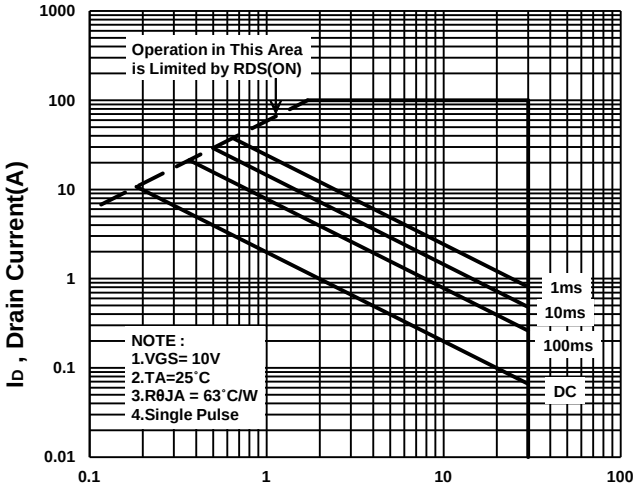
Gate charge Characteristics



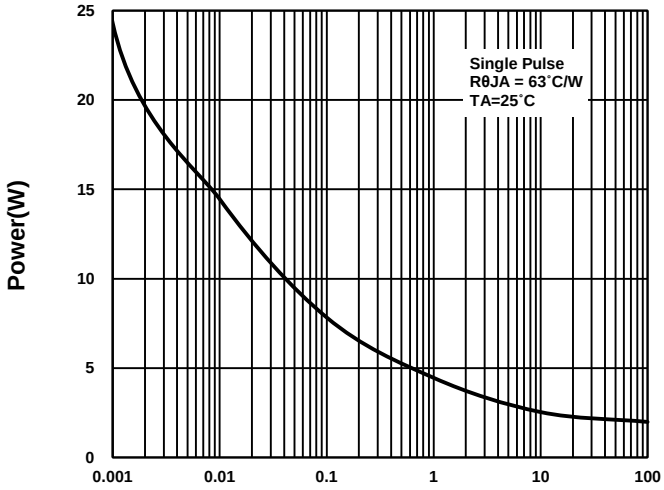
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve