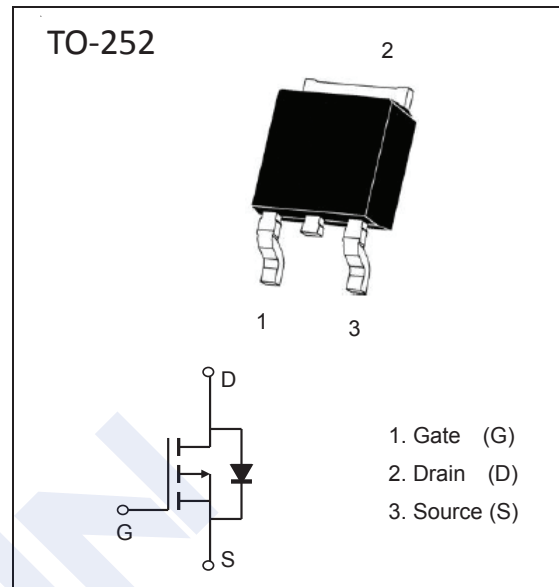


## P-Channel MOSFET

## 2KJ6029

## ■ Features

- $V_{DS} (V) = -100V$
- $I_D = -18A$
- $R_{DS(ON)} < 100m\Omega @ V_{GS} = -10V$  (Typ.:85m $\Omega$ )
- $R_{DS(ON)} < 120m\Omega @ V_{GS} = -4.5V$  (Typ.:95m $\Omega$ )
- Super high dense cell design
- Advanced trench process technology
- Reliable and rugged
- High density cell design for ultra low On-Resistance

■ Absolute Maximum Ratings (T<sub>c</sub> = 25°C Unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current	$I_D$	-18	A
Pulsed Drain Current	$I_{DM}$	-100	
Power Dissipation	$P_D$	70	W
Thermal Resistance, Junction- to-Case (Note 1)	$R_{\theta JC}$	1.79	$^{\circ}C/W$
Junction Temperature	$T_J$	175	$^{\circ}C$
Junction Storage Temperature Range	$T_{stg}$	-55 to 175	

Note 1. Surface Mounted on FR4 Board,  $t \leq 10$  sec.

## 2KJ6029

■ Electrical Characteristics (T<sub>c</sub> = 25°C Unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> =-250μA, V <sub>GS</sub> =0V	-100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-100V, V <sub>GS</sub> =0V			-1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1	-1.9	-3	V
Static Drain-Source On-Resistance (Note 1)	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-16A		85	100	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-16A		95	120	
Forward Transconductance (Note 1)	g <sub>FS</sub>	V <sub>DS</sub> =-50V, I <sub>D</sub> =-10A	5			S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-50V, f=1MHz		3810		pF
Output Capacitance	C <sub>oss</sub>			129		
Reverse Transfer Capacitance	C <sub>rss</sub>			125		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-50V, I <sub>D</sub> =-16A, V <sub>GS</sub> = -10V		70		nC
Gate Source Charge	Q <sub>gs</sub>			12.5		
Gate Drain Charge	Q <sub>gd</sub>			15.5		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DS</sub> =-50V, I <sub>D</sub> =-16A, V <sub>GS</sub> = -10 V, R <sub>G(ext)</sub> = 9.1 Ω		16		ns
Turn-On Rise Time	t <sub>r</sub>			73		
Turn-Off Delay Time	t <sub>d(off)</sub>			34		
Turn-Off Fall Time	t <sub>f</sub>			57		
Maximum Body-Diode Continuous Current	I <sub>S</sub>				-18	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>SD</sub> =-10 A, V <sub>GS</sub> =0V			-1.2	V
Reverse Recovery Time	t <sub>rr</sub>	T <sub>J</sub> = 25°C, I <sub>F</sub> =-16A, di/dt = 100A/μs (Note 1)		88.3		nS
Reverse Recovery Charge	Q <sub>rr</sub>			65.9		nC

Note 1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

## ■ Marking

Marking	J6029 K****
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### 2KJ6029

■ Typical Electrical and Thermal Characteristics

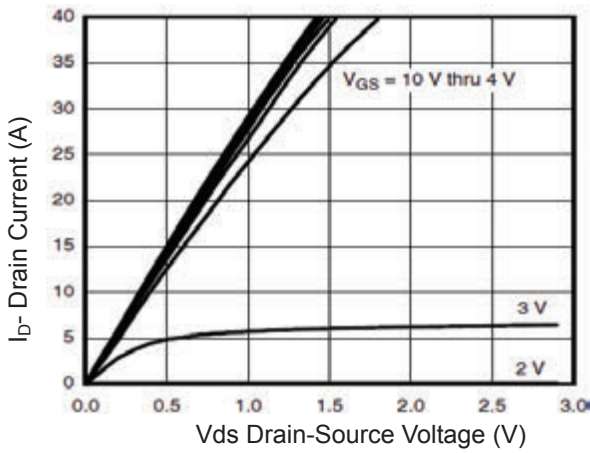


Figure 1 Output Characteristics

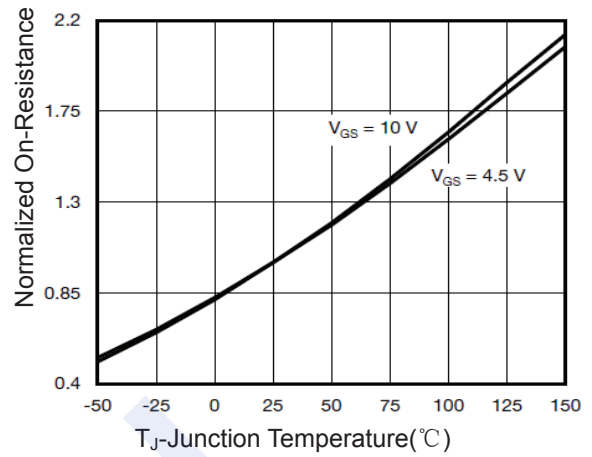


Figure 4 Rdson-Junction Temperature

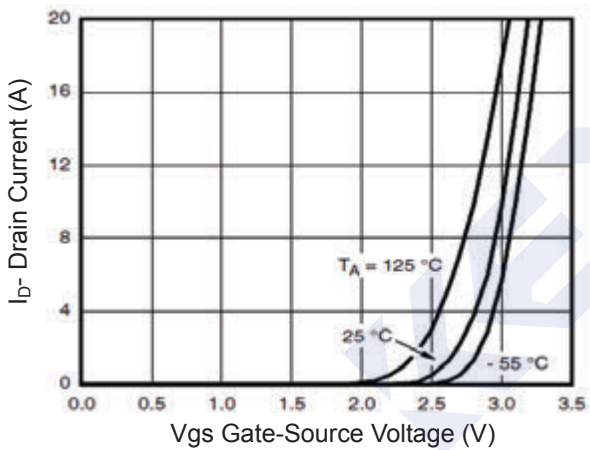


Figure 2 Transfer Characteristics

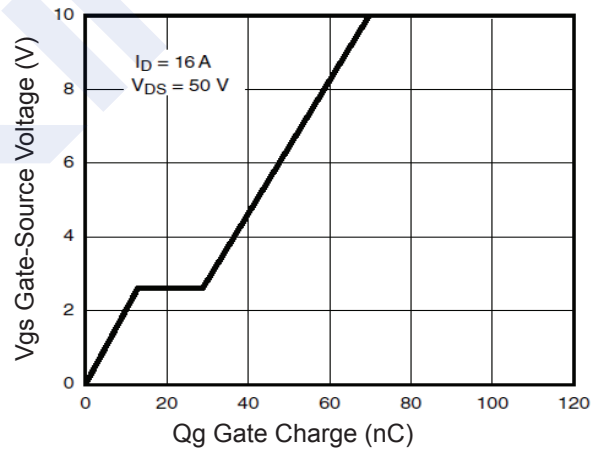


Figure 5 Gate Charge

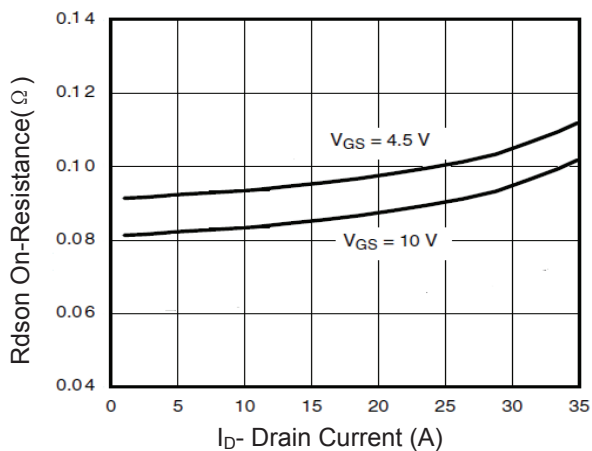


Figure 3 Rdson- Drain Current

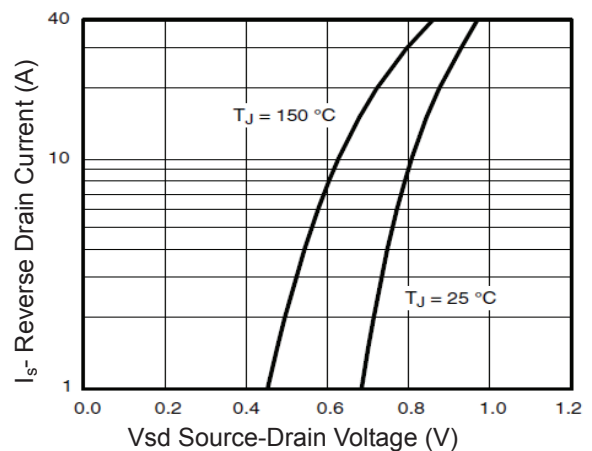


Figure 6 Source- Drain Diode Forward

2KJ6029

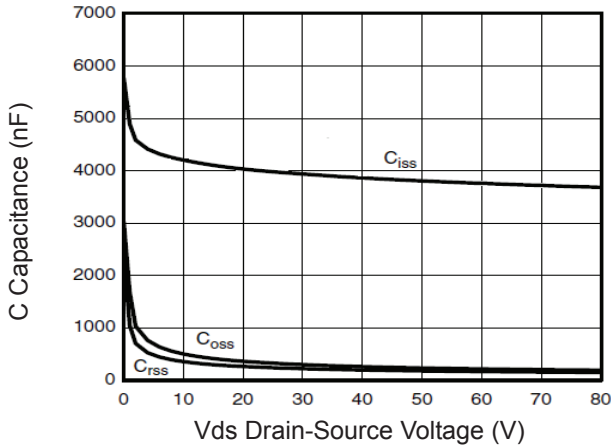


Figure 7 Capacitance vs Vds

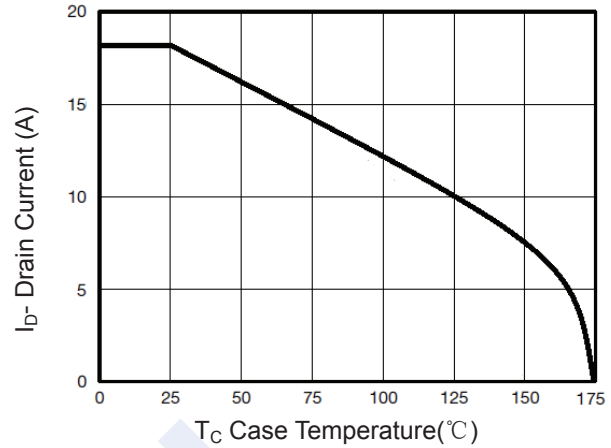


Figure 9 Drain Current vs Case Temperature

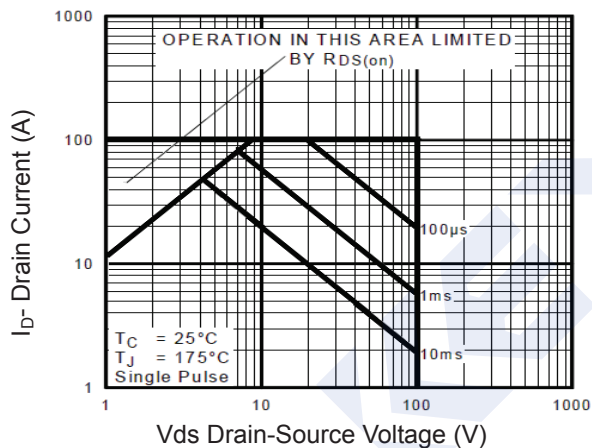


Figure 8 Safe Operation Area

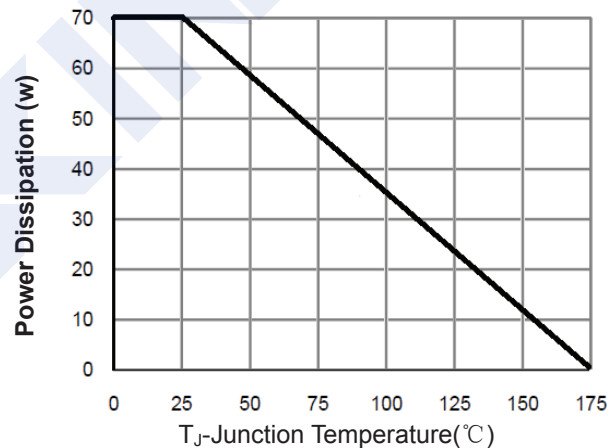


Figure 10 Power De-rating

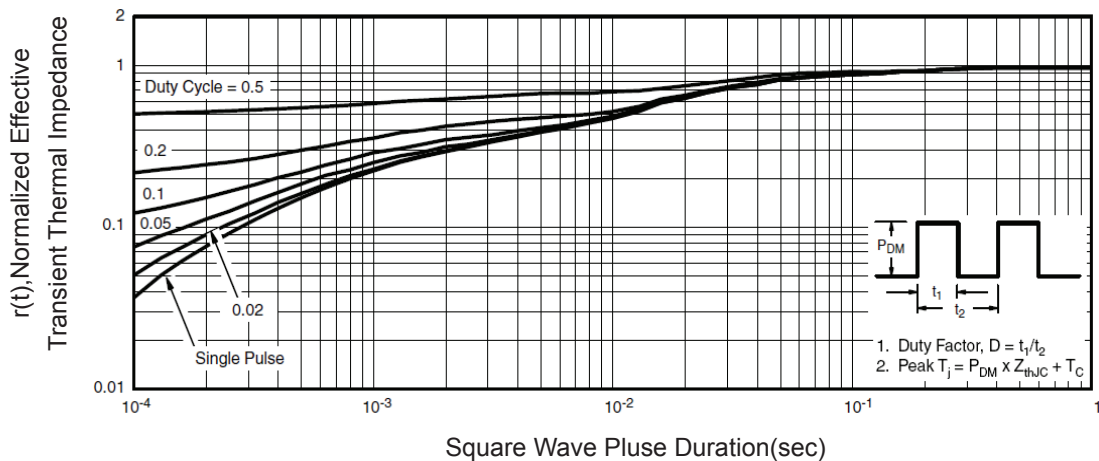
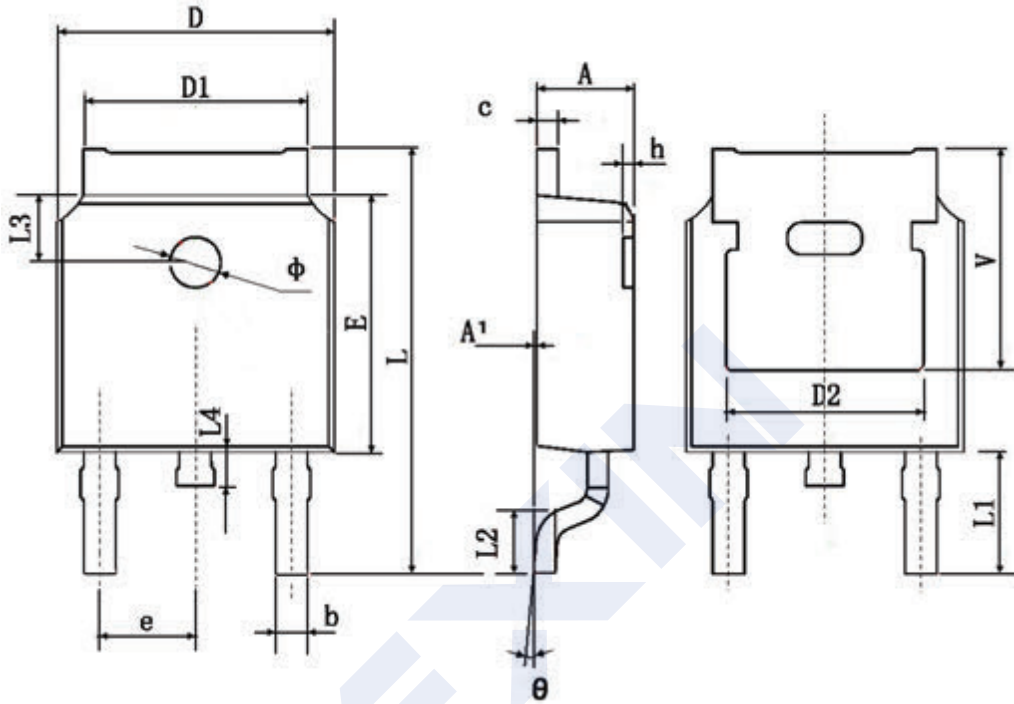


Figure 11 Normalized Maximum Transient Thermal Impedance

## 2KJ6029

## ■ Package Dimension

TO-252



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	