



YEA SHIN TECHNOLOGY CO., LTD

YS517CF

N+P-Channel Enhancement MOSFET



N-ch: VDS= 12V, ID= 6A / P-ch: VDS= -12V, ID= -4.1A

DFN2x2-6

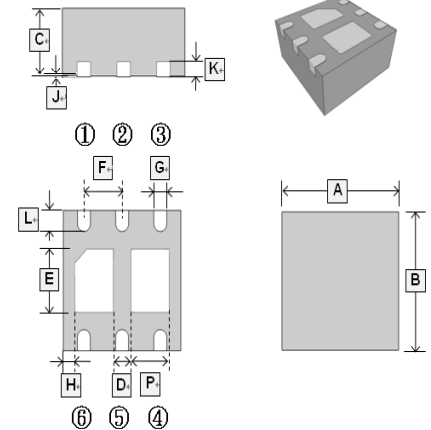
FEATURES

- Surface Mount Package
- Super High Density Cell Design for Extremely Low RDS(ON)
- Exceptional On-resistance and Maximum DC Current Capability

APPLICATIONS

- Power Management In Note Book
- Portable Equipment
- DC/DC Converter
- Load Switch

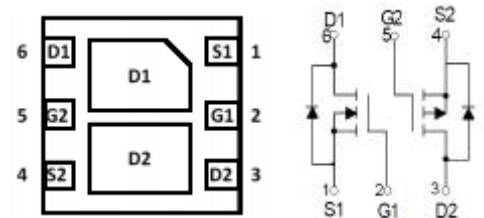
MARKING



REF.	Millimeter			REF.	Millimeter		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	1.924	2.0	2.076	G	0.30 BSC		
B	1.924	2.0	2.076	H	0.20 BSC		
C	0.675	0.78	0.90	J	0	-	0.06
D	0.30 Typ.			K	0.15	0.20	0.25
E	0.75	0.93	1.10	L	0.174	0.28	0.38
F	0.65BSC			P	0.50	0.61	0.72

PACKAGE INFORMATION

Package	MPQ	Leader Size
DFN2x2-6	3K	7 inch



ABSOLUTE MAXIMUM RATINGS (TA=25°C unless otherwise specified)

Parameter	Symbol	Rating		Unit
		N-ch	P-ch	
Drain-Source Voltage	V _{DS}	12	-12	V
Gate-Source Voltage	V _{GS}	±12	±12	V
Continuous Drain Current ¹	I _D	6	-4.1	A
Pulsed Drain Current(tp=10us)	I _{DM}	24	-16.4	A
Continous Source-Drain Diode Current	I _S	6	-4.1	A
Lead Temperature for Soldering Purposes (1/8” from case for 10 s)	T _L	260		℃
Operating Junction and Storage Temperature Range	T _J , T _{STG}	150, -55~150		℃
Thermal Resistance Rating				
Maximum Thermal Resistance from Junction to Ambient ¹	R _{θJA}	167		℃ / W

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N-CH ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	12	-	-	V	V _{GS} =0, I _D =250μA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1	μA	V _{DS} =16V, V _{GS} =0
Gate-Body Leakage Current	I _{GSS}	-	-	±100	nA	V _{DS} =0, V _{GS} = ±12V
Gate-Threshold Voltage ²	V _{GS(th)}	0.5	-	1	V	V _{DS} =V _{GS} , I _D =250μA
Drain-Source On-Resistance ²	R _{DS(ON)}	-	-	24	mΩ	V _{GS} =10V, I _D =6A
		-	-	27		V _{GS} =4.5V, I _D =5A
		-	-	42		V _{GS} =2.5V, I _D =4A
		-	-	74		V _{GS} =1.8V, I _D =2A
Forward Transfer conductance ²	g _{FS}	4	-	-	S	V _{DS} =5V, I _D =3.8A
Diode forward voltage	V _{SD}	-	-	1	V	I _S =1A, V _{GS} =0V
Dynamic Characteristics						
Input Capacitance	C _{iss}	-	630	-	pF	V _{DS} =10V
Output Capacitance	C _{oss}	-	164	-		V _{GS} =0
Reverse Transfer Capacitance	C _{rss}	-	137	-		f=1MHz
Switching Characteristics ³						
Turn-On Delay Time	T _{d(ON)}	-	5.5	-	nS	V _{DS} =10V
Rise Time	T _r	-	14	-		V _{GS} =5V
Turn-Off Delay Time	T _{d(OFF)}	-	29	-		R _G =6Ω
Fall Time	T _f	-	10.2	-		R _L =1.7Ω
Total Gate Charge	Q _g	-	12	-	nC	V _{DS} =10V
Gate-Source Charge	Q _{gs}	-	1	-		V _{GS} =10V
Gate-Drain Charge	Q _{gd}	-	2	-		I _D =6A

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P-CH ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	-12	-	-	V	V _{GS} =0, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	-1	μA	V _{DS} = -8V, V _{GS} =0
Gate-Body Leakage Current	I _{GSS}	-	-	±100	nA	V _{DS} =0, V _{GS} = ±8V
Gate-Threshold Voltage ²	V _{GS(th)}	-0.5	-	-0.9	V	V _{DS} =V _{GS} , I _D = -250μA
Drain-Source On-Resistance ²	R _{DS(ON)}	-	-	45	mΩ	V _{GS} = -4.5V, I _D = -3.5A
		-	-	60		V _{GS} = -2.5V, I _D = -3A
		-	-	90		V _{GS} = -1.8V, I _D = -2A
Forward Transfer conductance ²	g _{FS}	6	-	-	S	V _{DS} = -5V, I _D = -4.1A
Diode forward voltage	V _{SD}	-	-	-1.2	V	I _S = -3.3A, V _{GS} =0V
Dynamic Characteristics						
Input Capacitance	C _{iSS}	-	740	-	pF	V _{DS} = -4V
Output Capacitance	C _{oSS}	-	290	-		V _{GS} =0
Reverse Transfer Capacitance	C _{rSS}	-	190	-		f=1MHz
Switching Characteristics ³						
Turn-On Delay Time	T _{d(ON)}	-	20	-	nS	V _{DD} = -4V
Rise Time	T _r	-	53	-		V _{GEN} = -4.5V
Turn-Off Delay Time	T _{d(OFF)}	-	48	-		I _D = -3.3A
Fall Time	T _f	-	20	-		R _G =1Ω R _L =1.2Ω
Total Gate Charge	Q _g	-	9	-	nC	V _{DS} = -4V
Gate-Source Charge	Q _{gs}	-	1.2	-		V _{GS} = -2.5V
Gate-Drain Charge	Q _{gd}	-	1.6	-		I _D = -4.1A

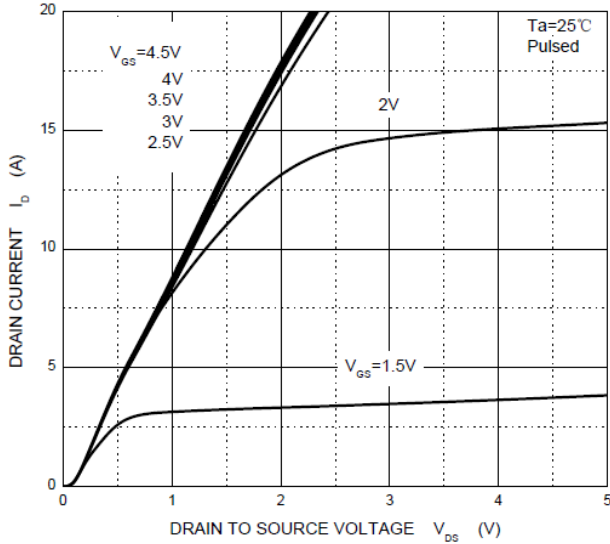
Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse width=300μs, duty cycle≤2%.
3. Switching characteristics are independent of operating junction temperature.

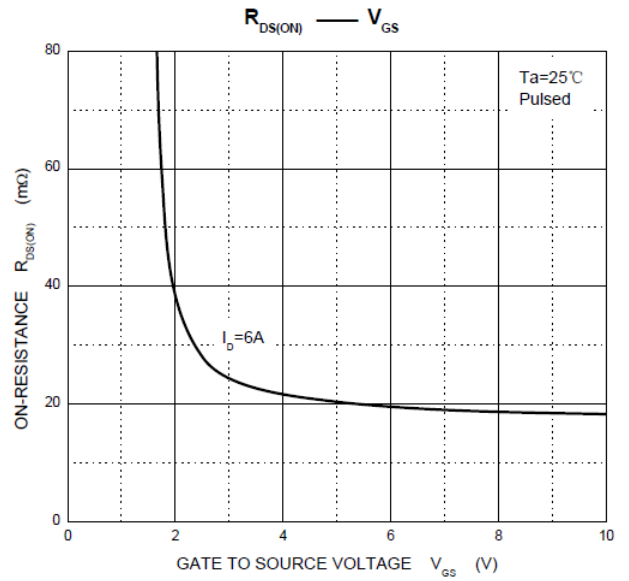
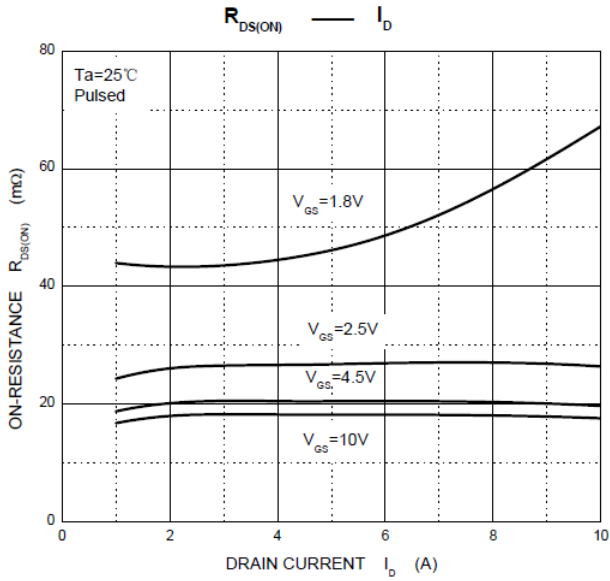
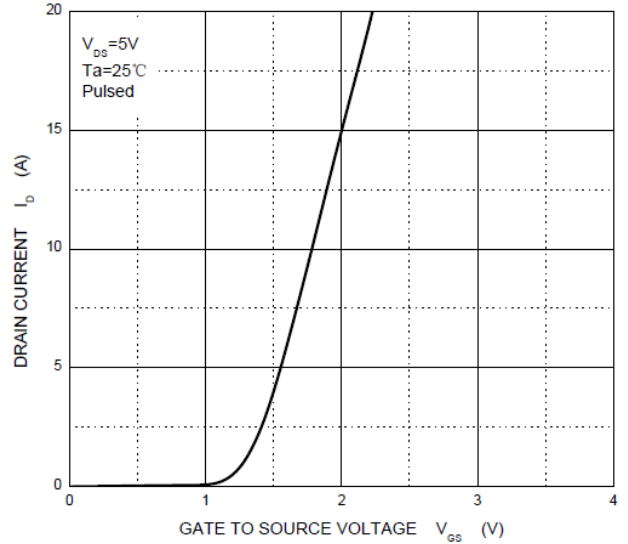
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N-CH CHARACTERISTIC CURVE

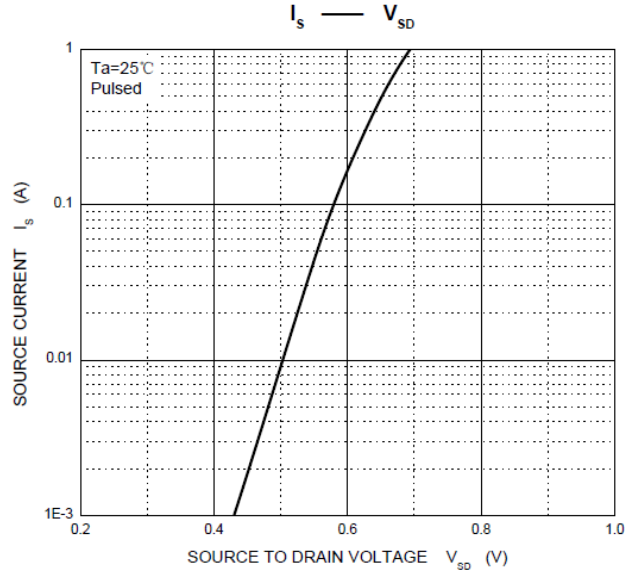
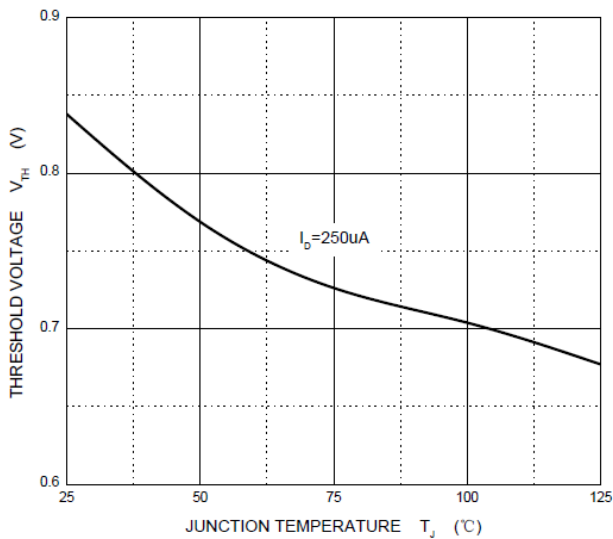
Output Characteristics



Transfer Characteristics



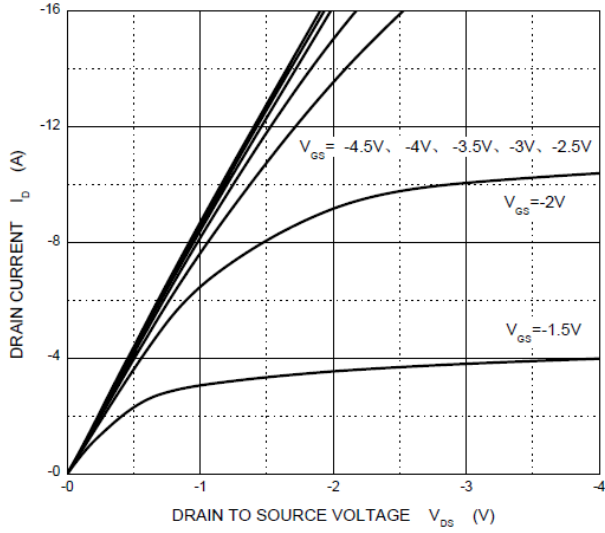
Threshold Voltage



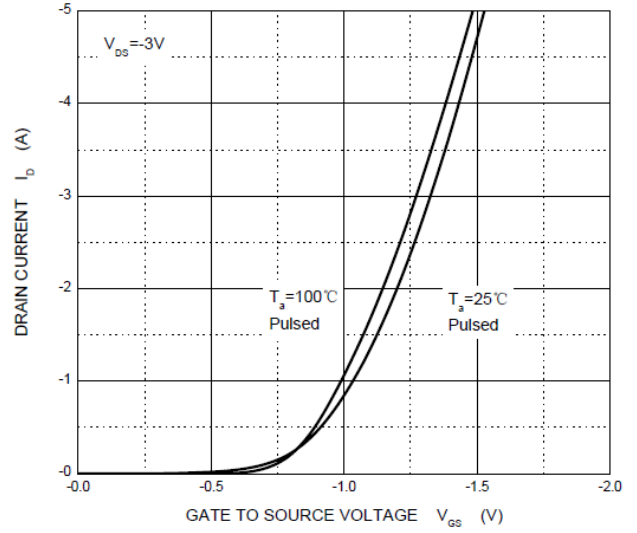
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P-CH CHARACTERISTIC CURVE

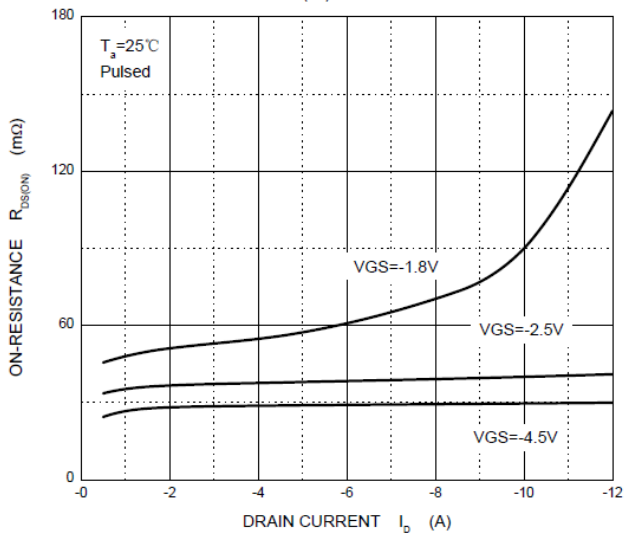
Output Characteristics



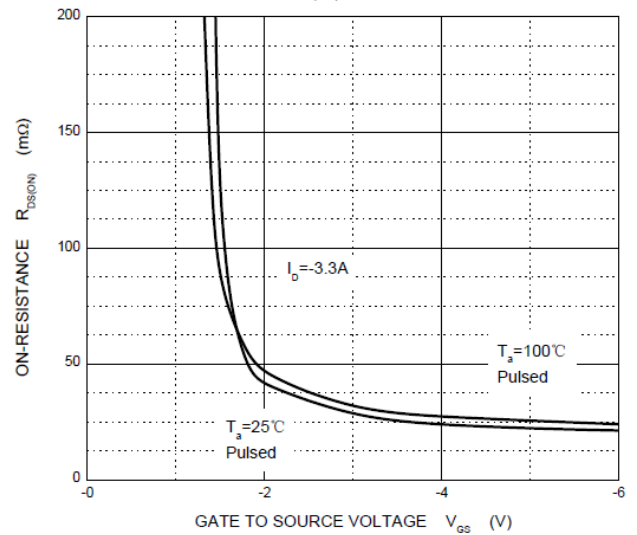
Transfer Characteristics



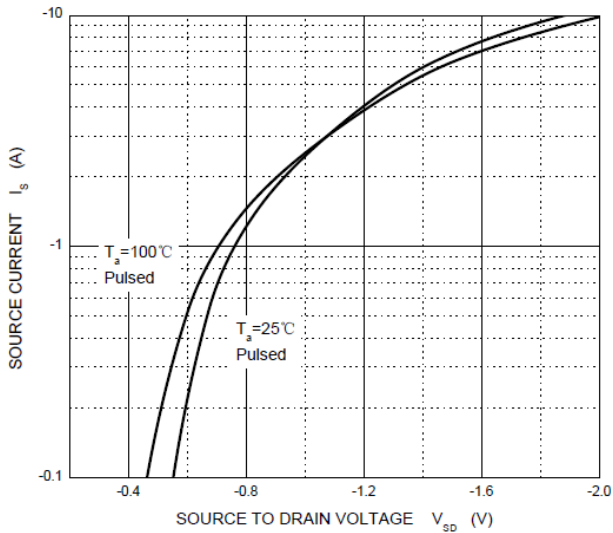
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage

