Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	16mΩ@-10V	-8.5A

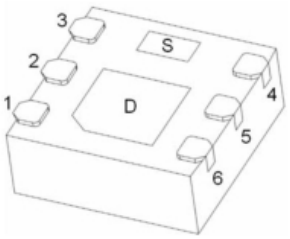
Feature

- $R_{DS(ON)}$, V_{GS}@-10V, I_D@-6A<22mΩ
- $R_{DS(ON)}$, V_{GS}@-4.5V, I_D@-4A<30mΩ
- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- Low reverse transfer capacitance

Application

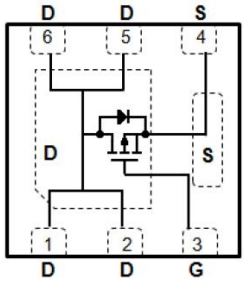
- PWM application
- Load switch
- Battery charge in cellular handset

Package

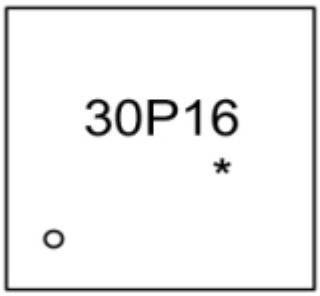


DFN2*2-6L-J

Circuit diagram



Marking



30P16 =Device Code
*** =Month Code**

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-8.5	A
Pulsed Drain Current[1)]	I_{DM}	-50	A
Power Dissipation	P_D	2	W
Thermal Resistance from Junction to Ambient[2)]	$R_{\theta JA}$	61	℃
Junction Temperature	T_J	150	
Storage Temperature	T_{STG}	-55~ +150	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-30V, V_{GS} = 0V			-1	uA
Gate-Source Leakage	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	uA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1	-1.5	-2.5	V
Drain-Source On-Resistance[1]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-6A		16	22	mΩ
		V_{GS} =-4.5V, I_D =-4A		20	30	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-15V, V_{GS}=0V, f=1MHz		1345		pF
Output Capacitance	C_{oss}			194		
Reverse Transfer Capacitance	C_{rss}			158		
Switching Characteristics						
Turn-on Delay Time	$T_{d(on)}$	V_{DD} =-15V , V_{GS}=-10V, R_G=3.3Ω, I_D=-6A		4.6		nS
Turn-on Rise Time	T_r			14.8		
Turn-off Delay Time	$T_{d(off)}$			41		
Turn-off Fall Time	T_f			19.6		
Total Gate Charge	Q_g	V_{DS}=-15V,V_{GS}=-4.5V, I_D=-6A		12.6		nC
Gate-Source Charge	Q_{gs}			4.8		
Gate-Drain Charge	Q_{gd}			4.8		
Drain-Source Diode Characteristics						
Body Diode Voltage	V_{SD}	I_S=-1A,V_{GS}=0V			-1.2	V

Note:

1. Repetitive rating: Pulse width limited by junction temperature.
2. Surface mounted on FR4 board, t≤10s.

Typical Characteristics

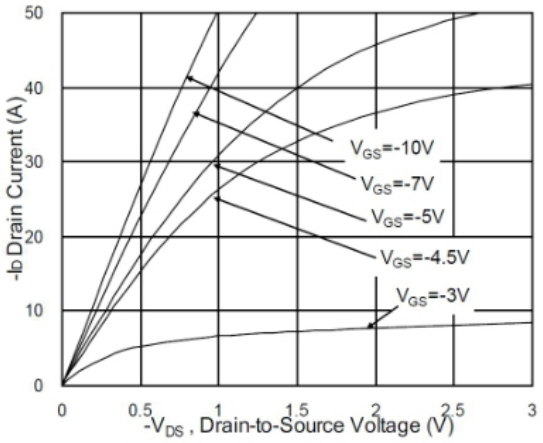


Fig.1 Typical Output Characteristics

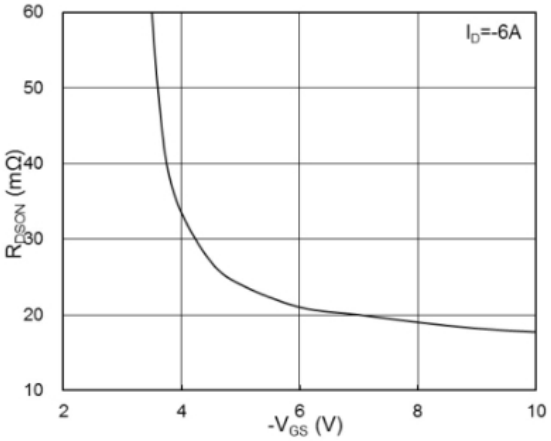


Fig.2 On-Resistance vs. Gate-Source

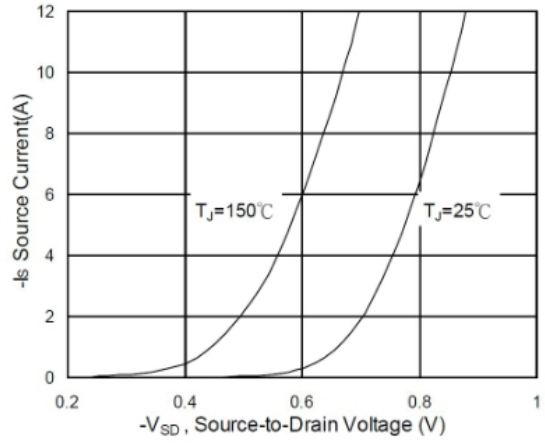


Fig.3 Forward Characteristics Of Reverse

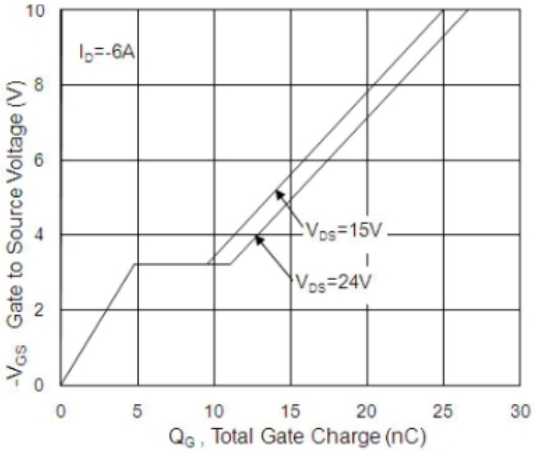


Fig.4 Gate-Charge Characteristics

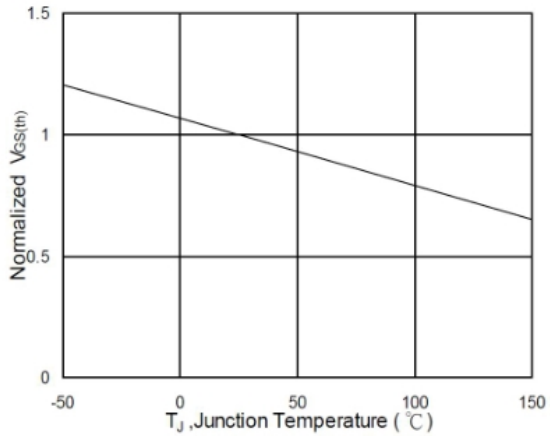


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

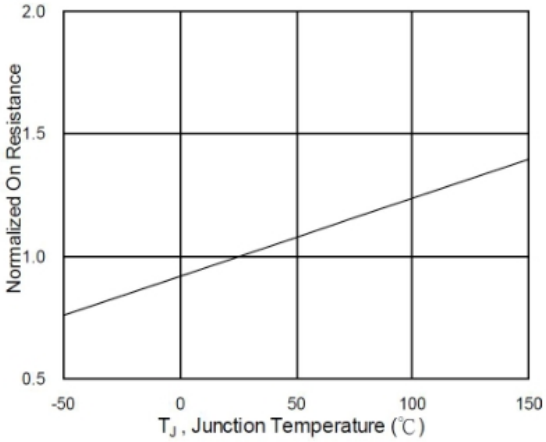


Fig.6 Normalized R_{DSON} vs. T_J

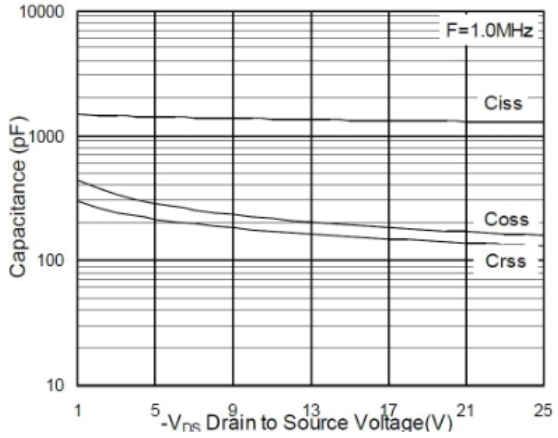


Fig.7 Capacitance

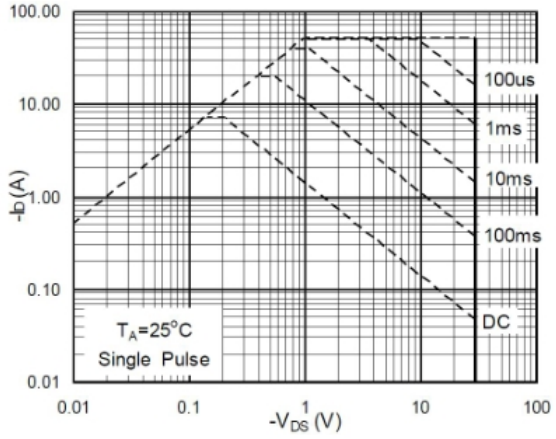


Fig.8 Safe Operating Area

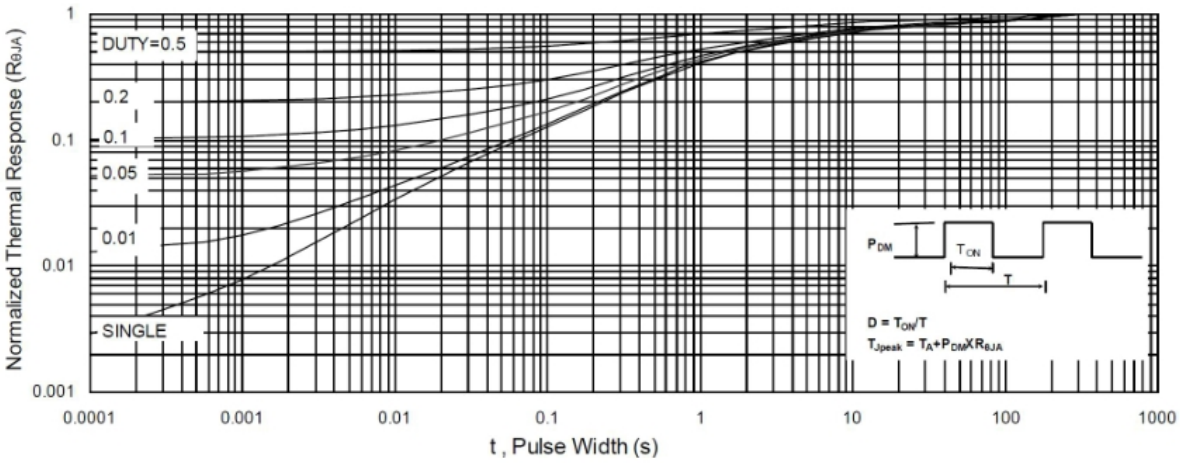


Fig.9 Normalized Maximum Transient Thermal Impedance

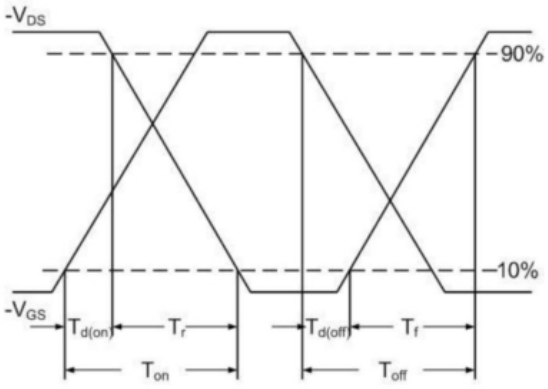


Fig.10 Switching Time Waveform

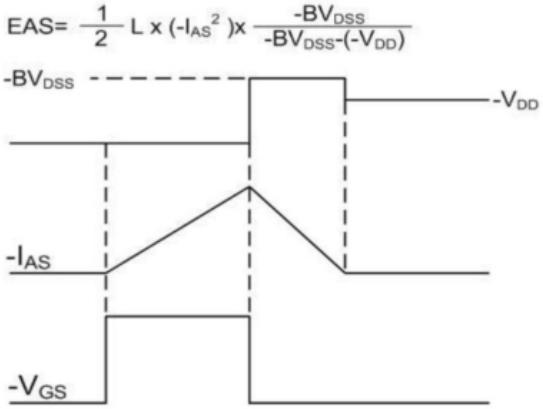
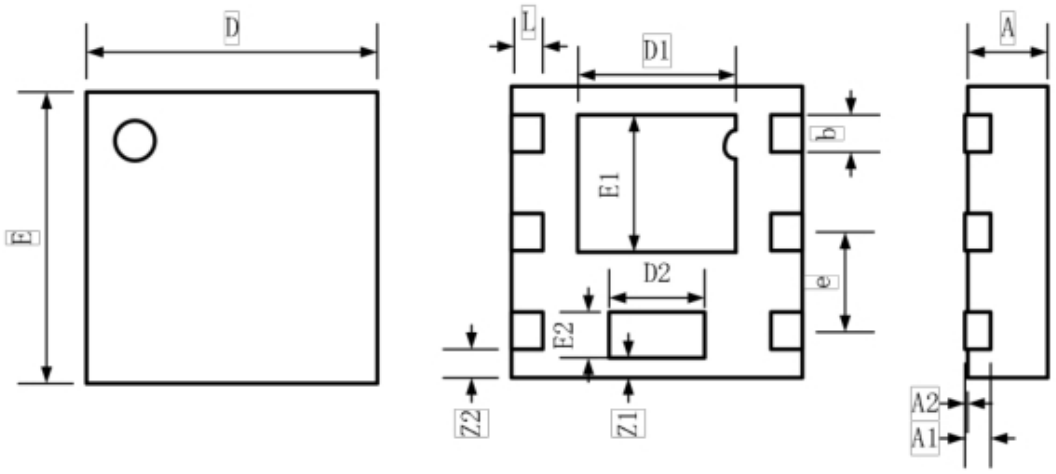


Fig.11 Gate Charge Waveform

DFN2*2-6L Package Information



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D1	1.10	1.15	1.20
E1	0.90	0.95	1.00
D2	0.65	0.70	0.75
E2	0.33	0.38	0.43
L	0.225	0.275	0.325
b	0.25	0.30	0.35
e	0.65BSC		
A	0.47	0.5	0.55
A1	0.20REF		
A2	0.00		0.05
Z1	0.06	0.11	0.16
Z2	0.15	0.20	0.25