

General Description

Switching regulator and DC-DC Converter applications.
It is mainly suitable for power management in PC, portable equipment and battery powered systems.

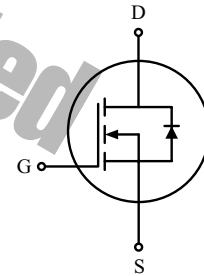
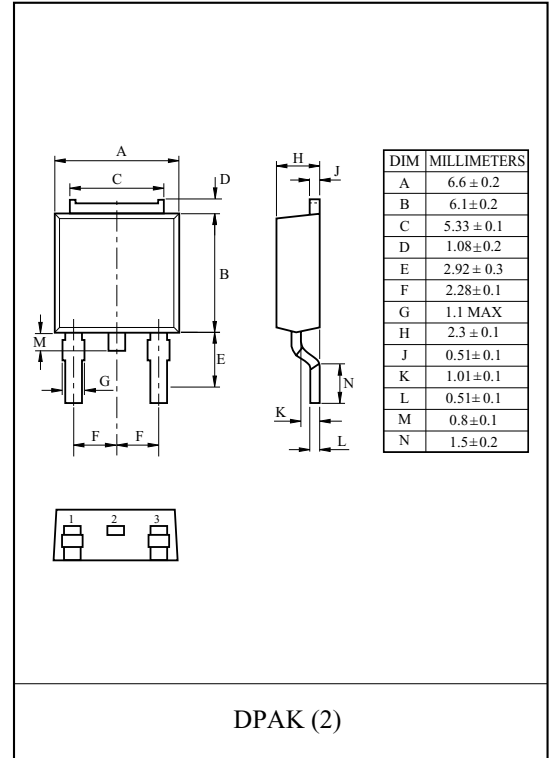
FEATURES

- $V_{DSS}=30V$, $I_D=30A$.
- Low Drain-Source ON Resistance.
 - : $R_{DS(ON)}=18m$ (Max.) @ $V_{GS}=10V$
 - : $R_{DS(ON)}=36m$ (Max.) @ $V_{GS}=4.5V$
- Super High Dense Cell Design.
- High Power and Current Handling Capability.

MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC	I_D^*	30 A
	Pulsed (Note 1)	I_{DP}^*	75 A
Source-Drain Diode Current	I_S	20	A
Drain Power Dissipation (Tc=25 °C)	P_D^*	50	W
Maximum Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55 ~ 150	°C
Thermal Resistance, Junction to Case	R_{thJC}	3	/W
Thermal Resistance, Junction to Ambient	R_{thJA}^*	50	/W

* : Surface Mounted on FR4 Board, t = 10sec.



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ELECTRICAL CHARACTERISTICS (Ta=25 °C)

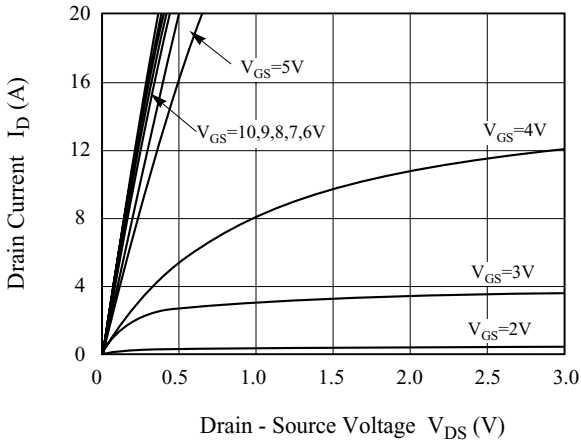
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\ \mu A, V_{GS}=0V,$	30	-	-	V
Drain Cut-off Current	I_{DSS}	$V_{GS}=0V, V_{DS}=24V$	-	-	1	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	V_{th}	$V_{DS}=V_{GS}, I_D=250\ \mu A$	1.0	1.7	2.5	V
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$ (Note 1)	-	13	18	m
		$V_{GS}=4.5V, I_D=12A$ (Note 1)	-	23	36	
ON State Drain Current	$I_{D(ON)}$	$V_{GS}=10V, V_{DS}=10V$ (Note 1)	40	-	-	A
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=20A$ (Note 1)	-	16	-	S
Source-Drain Diode Forward Voltage	V_{SD}	$I_S=20A, V_{GS}=0V$ (Note 1)	-	0.94	1.3	V
Dynamic (Note 2)						
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=20A, V_{GS}=10V$ (Fig.1)	-	15.3	-	nC
		$V_{DS}=15V, I_D=20A, V_{GS}=4.5V$ (Fig.1)	-	7.5	-	
Gate-Source Charge	Q_{gs}	$V_{DS}=15V, I_D=20A, V_{GS}=10V$ (Fig.1)	-	2.3	-	
Gate-Drain Charge	Q_{gd}		-	4.2	-	
Turn-on Delay time	$t_{d(on)}$		-	7.6	-	ns
Turn-on Rise time	t_r	$V_{DD}=15V, I_D=1A,$	-	23.5	-	
Turn-off Delay time	$t_{d(off)}$	$V_{GS}=10V, R_G=6$ (Fig.2)	-	15.8	-	
Turn-off Fall time	t_f		-	5	-	
Input Capacitance	C_{iss}		-	872	-	pF
Output Capacitance	C_{oss}	$V_{DS}=15V, V_{GS}=0V, f=1.0MHz$	-	196	-	
Reverse transfer Capacitance	C_{rss}		-	105	-	

Note 1) Pulse test : Pulse width 300 μs , Duty Cycle 2%.

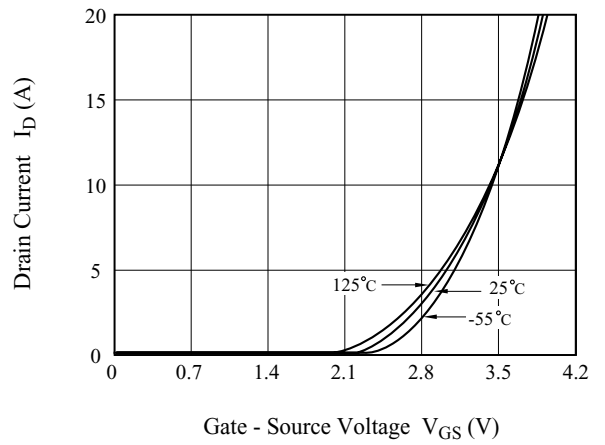
Note 2) Guaranteed by design. Not subject to production testing.

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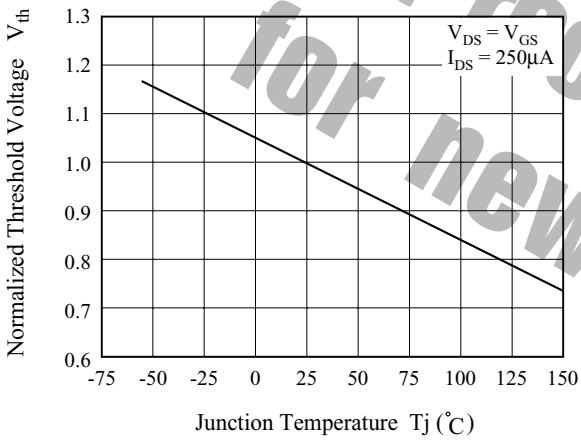
$I_D - V_{DS}$



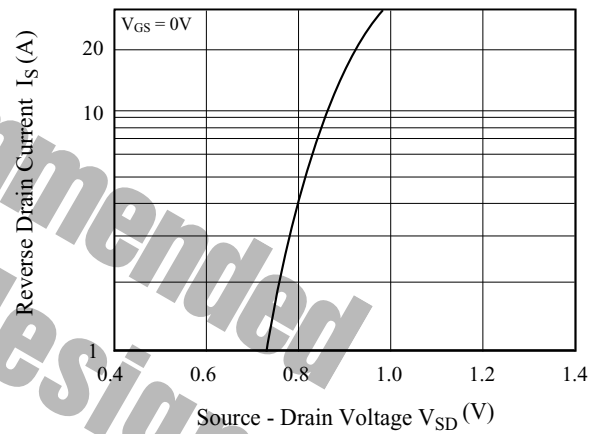
$I_D - V_{GS}$



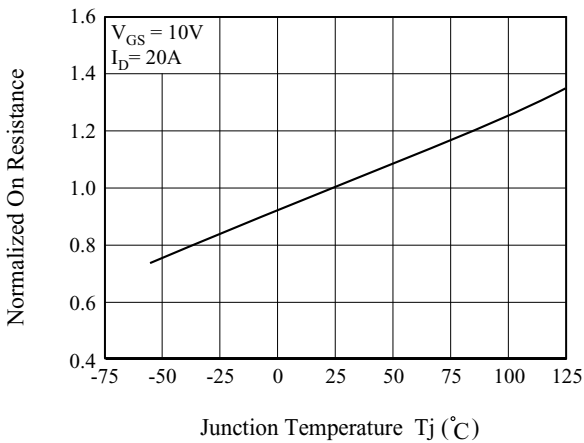
$V_{th} - T_j$



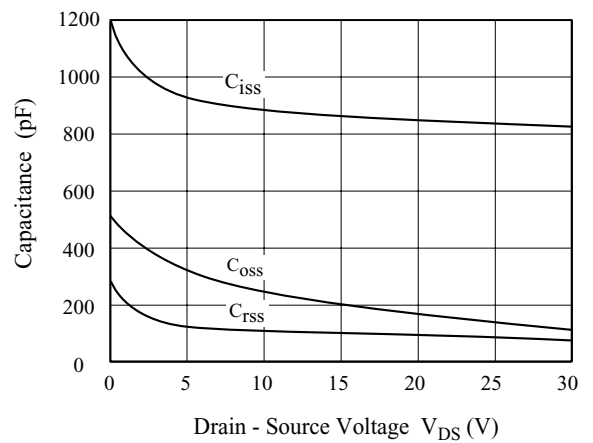
$I_S - V_{SD}$



$R_{DS(ON)} - T_j$



$C - V_{DS}$



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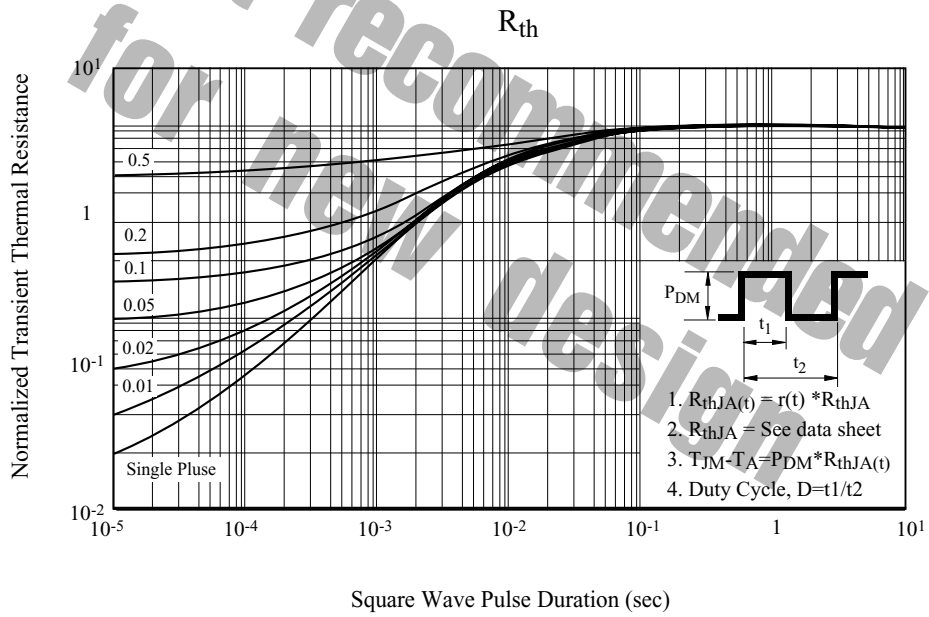
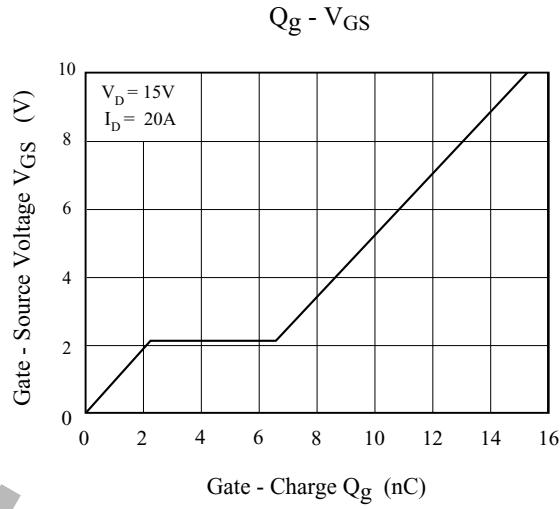


Fig. 1 Gate Charge

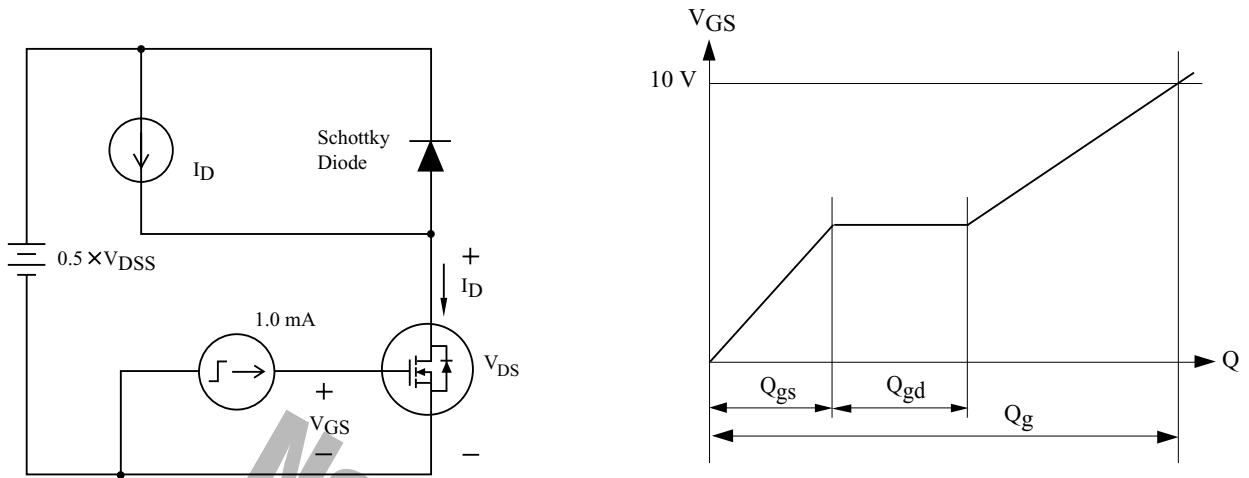


Fig. 2 Resistive Load Switching

