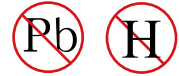




P- Channel Enhancement MOSFET



VDS= -30V, ID= -35A

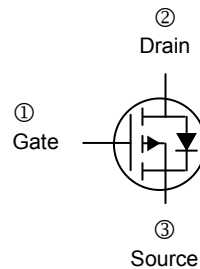
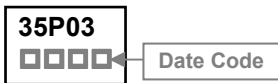
DESCRIPTION

P-ch MOSFETs with extreme high cell density , which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications. The SSD35P03 meet the RoHS and Green Product with Function reliability approved.

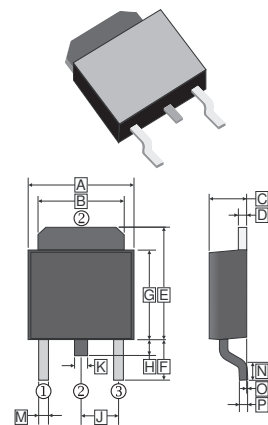
FEATURES

- Advanced high Cell Density Trench Technology
- Super Low Gate Charge
- Green Device Available
- TO-252 Package

MARKING



TO-252(D-Pack)



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.90	J	2.336	REF.
B	4.95	5.53	K	0.89	REF.
C	2.10	2.50	M	0.45	1.14
D	0.665 Typ.		N	1.55 Typ.	
E	6.0	7.5	O	0	0.13
F	2.90 REF.		P	0.58 REF.	
G	5.40	6.40			
H	0.60	1.20			

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, @ $V_{GS}=10\text{V}$ ¹	I_D	$T_C=25^\circ\text{C}$	-35
		$T_C=100^\circ\text{C}$	-22
Pulsed Drain Current ²	I_{DM}	-80	A
Power Dissipation	P_D	50	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 150	$^\circ\text{C}$
Thermal Resistance Ratings			
Maximum Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	62.5	$^\circ\text{C} / \text{W}$
Maximum Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	2.5	

YS35P03D

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions	
Drain-Source Breakdown Voltage	BV _{DSS}	-30	-	-	V	V _{GS} =0, I _D = -250μA	
Gate Threshold Voltage	V _{GS(th)}	-1	-	-2.5	V	V _{DS} =V _{GS} , I _D = -250μA	
Forward Transfer conductance	g _{fs}	-	20	-	S	V _{DS} = -5V, I _D = -18A	
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V	
Drain-Source Leakage Current	I _{DSS}	T _J =25°C	-	-	-1	μA	V _{DS} = -24V, V _{GS} =0
		T _J =55°C	-	-	-5		
Static Drain-Source On-Resistance ³	R _{DS(ON)}	-	-	28	mΩ	V _{GS} = -10V, I _D = -18A	
		-	-	40		V _{GS} = -4.5V, I _D = -10A	
Total Gate Charge	Q _g	-	18	-	nC	I _D = -18A V _{DS} = -15V V _{GS} = -10V	
Gate-Source Charge	Q _{gs}	-	3.3	-			
Gate-Drain Charge	Q _{gd}	-	4.9	-			
Turn-on Delay Time	T _{d(on)}	-	7	-	nS	V _{DD} = -15V I _D = -18A V _{GS} = -10V R _G =3Ω	
Rise Time	T _r	-	11	-			
Turn-off Delay Time	T _{d(off)}	-	27	-			
Fall Time	T _f	-	8	-			
Input Capacitance	C _{iss}	-	1345	-	pF	V _{GS} =0 V _{DS} = -15V f=1.0MHz	
Output Capacitance	C _{oss}	-	194	-			
Reverse Transfer Capacitance	C _{rss}	-	158	-			
Source-Drain Diode							
Forward On Voltage ³	V _{SD}	-	-	-1.2	V	I _S = -1A, V _{GS} =0	
Reverse Recovery Time	T _{rr}	-	24	-	nS	I _F = -18A, di/dt=100A/μs	
Reverse Recovery Charge	Q _{rr}	-	14	-	nC	T _J =25°C	

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2oz copper.
2. The power dissipation is limited by 150°C junction temperature.
3. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.

DEVICE CHARACTERISTICS

YS35P03D

TYPICAL CHARACTERISTICS CURVE

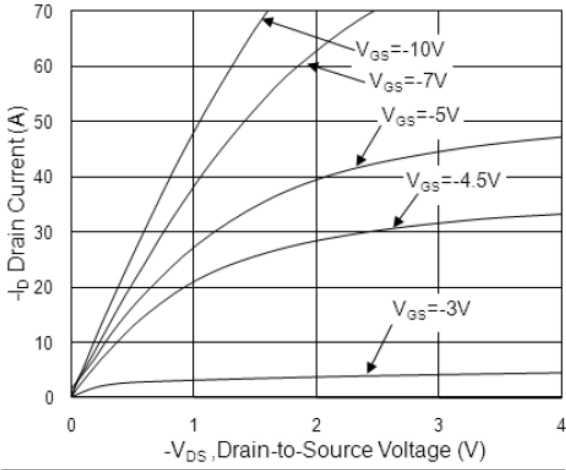


Fig.1 Typical Output Characteristics

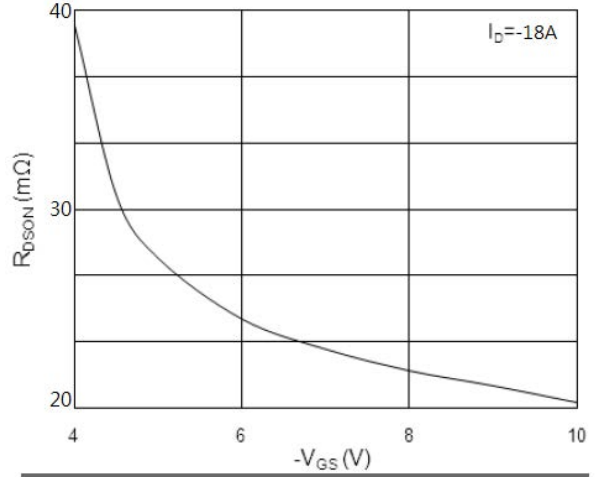


Fig.2 On-Resistance v.s Gate-Source

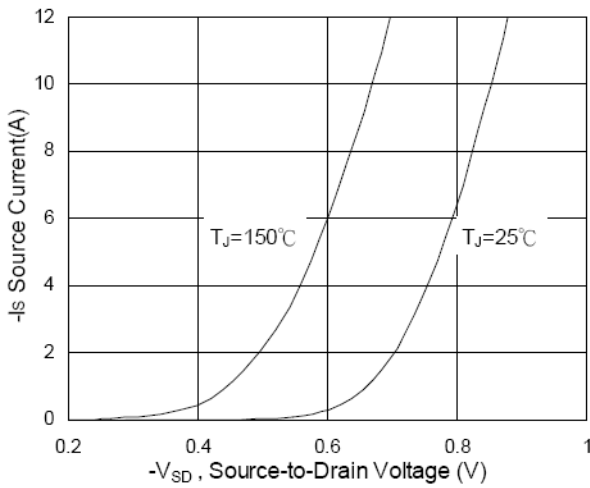


Fig.3 Forward Characteristics of Reverse

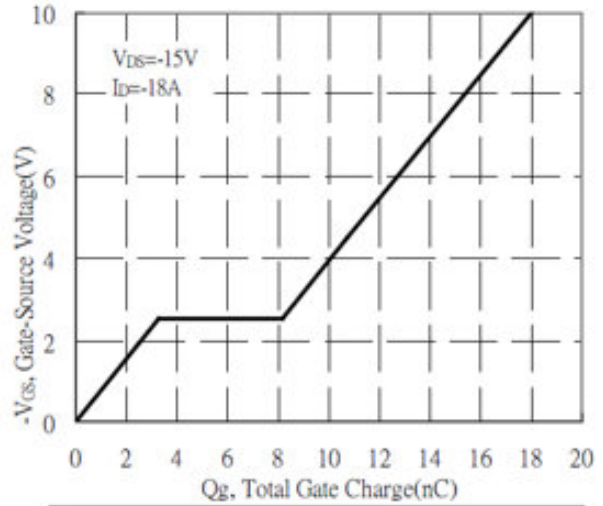


Fig.4 Gate-Charge Characteristics

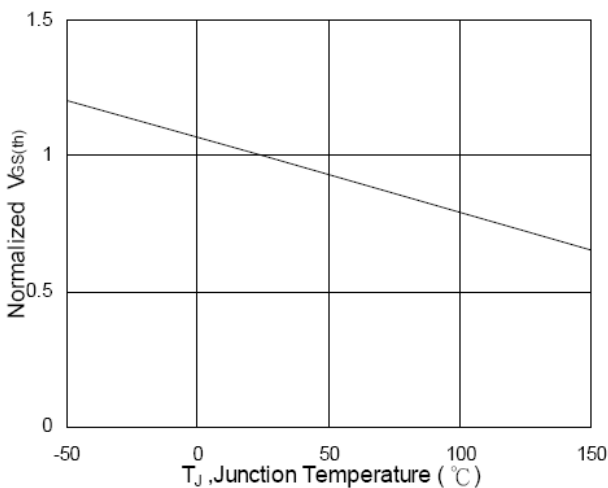


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

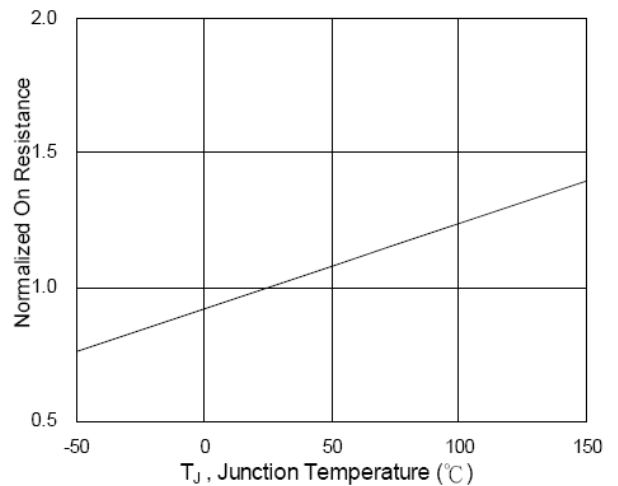


Fig.6 Normalized $R_{DS(on)}$ v.s T_J

DEVICE CHARACTERISTICS

YS35P03D

TYPICAL CHARACTERISTICS CURVE

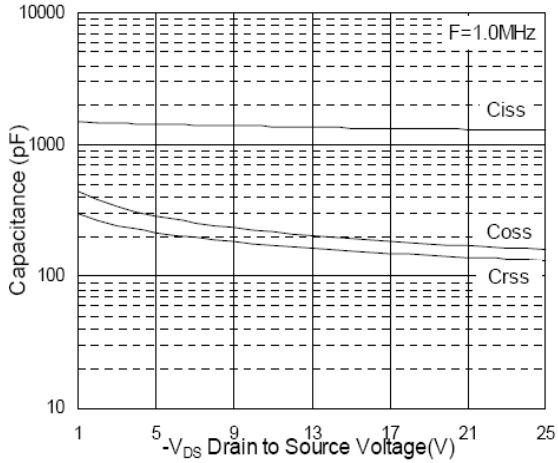


Fig.7 Capacitance

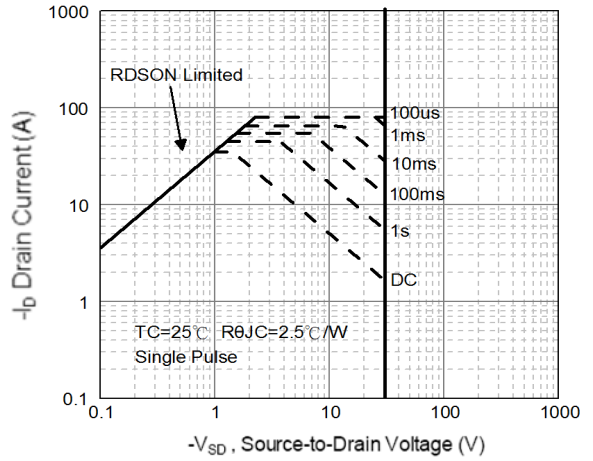


Fig.8 Safe Operating Area

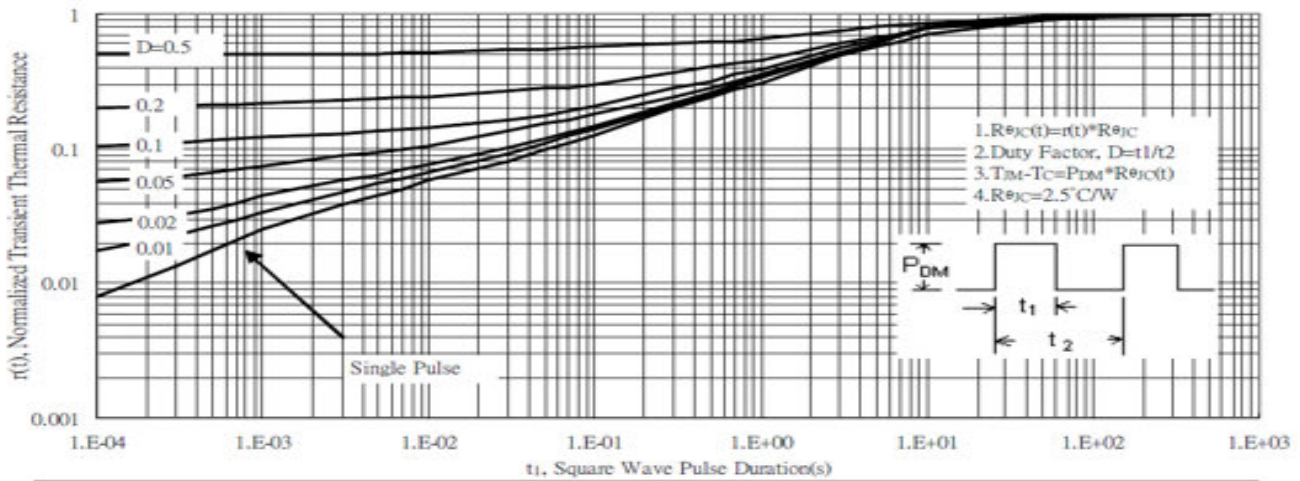


Fig.9 Normalized Maximum Transient Thermal Impedance

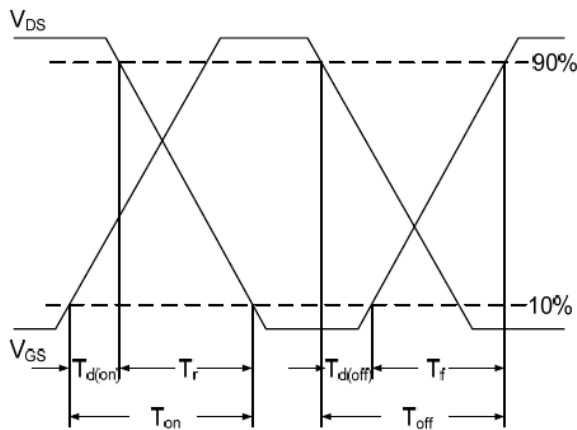


Fig.10 Switching Time Waveform

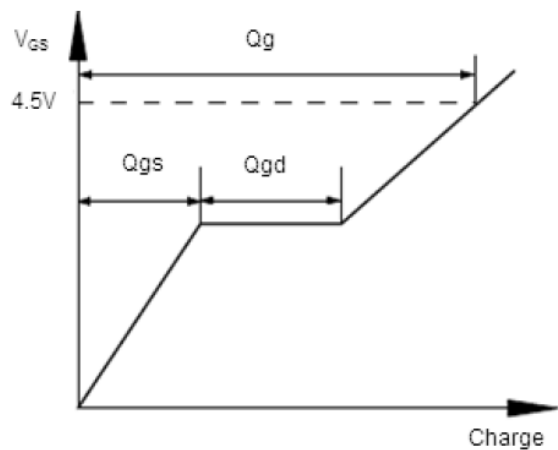


Fig.11 Gate Charge Waveform