Pb Free Plating Product

GTM CORPORATION

ISSUED DATE :2007/01/15
REVISED DATE :

G3407

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

BV_{DSS}	-30V
$R_{DS(ON)}$	52mΩ
I_D	-4.1A

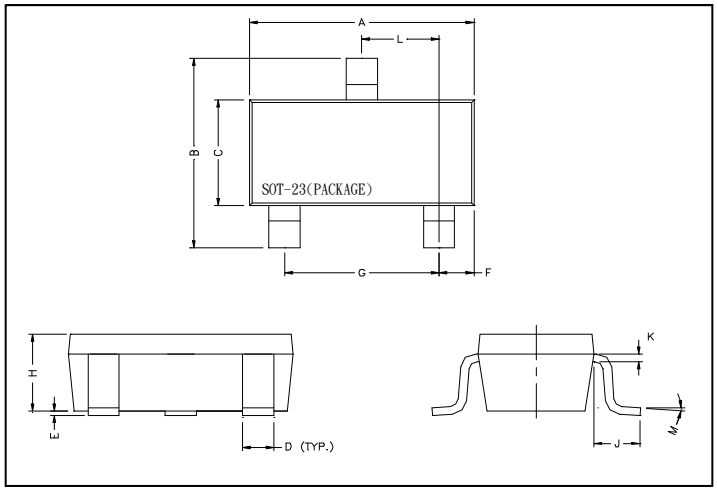
Description

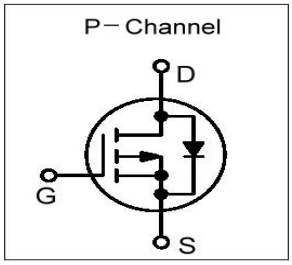
The G3407 uses advanced trench technology to provide excellent on-resistance with low gate change. The device is suitable for use as a load switch or in PWM applications.

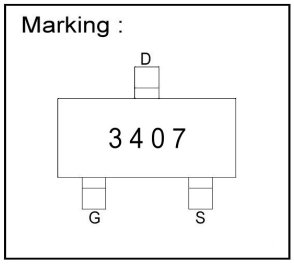
Features

*Lower Gate Charge
*Small Package Outline
*RoHS Compliant

Package Dimensions







REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.40	2.80	H	1.00	1.30
C	1.40	1.60	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[3]	I_D @TA=25℃	-4.1	A
Continuous Drain Current[3]	I_D @TA=70℃	-3.5	A
Pulsed Drain Current[1]	I_{DM}	-20	A
Power Dissipation	P_D @TA=25℃	1.38	W
Linear Derating Factor		0.01	W/℃
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +150	℃

Thermal Data

Parameter	Symbol	Ratings	Unit
Thermal Resistance Junction-ambient[3] Max.	Rthj-a	90	℃/W

Electrical Characteristics (Tj = 25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	V_{GS}=0, I_D=-250uA
Gate Threshold Voltage	$V_{GS(th)}$	-1.0	-	-3.0	V	V_{DS}=V_{GS}, I_D=-250uA
Forward Transconductance	g_{fs}	-	8.2	-	S	V_{DS}=-5V, I_D=-4A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current(Tj=25℃)	I_{DSS}	-	-	-1	uA	V_{DS}=-30V, V_{GS}=0
Drain-Source Leakage Current(Tj=55℃)		-	-	-5	uA	V_{DS}=-24V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	52	mΩ	V_{GS}=-10V, I_D=-4.1A
		-	-	87		V_{GS}=-4.5V, I_D=-3.0A
Total Gate Charge[2]	Q_g	-	7	-	nC	I_D=-4A V_{DS}=-15V V_{GS}=-4.5V
Gate-Source Charge	Q_{gs}	-	3.1	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	3	-		
Turn-on Delay Time[2]	$T_{d(on)}$	-	8.6	-	ns	V_{DS}=-15V V_{GS}=-10V R_G=3Ω R_L=3.6Ω
Rise Time	T_r	-	5	-		
Turn-off Delay Time	$T_{d(off)}$	-	28.2	-		
Fall Time	T_f	-	13.5	-		
Input Capacitance	C_{iss}	-	700	840	pF	V_{GS}=0V V_{DS}=-15V f=1.0MHz
Output Capacitance	C_{oss}	-	120	-		
Reverse Transfer Capacitance	C_{rss}	-	75	-		
Gate Resistance	R_g	-	10	-	Ω	f=1.0MHz

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage[2]	V_{SD}	-	-	-1.0	V	I_S=-1.0A, V_{GS}=0V
Reverse Recovery Time[2]	T_{rr}	-	27	-	ns	I_S=-4A, V_{GS}=0V dI/dt=100A/μs
Reverse Recovery Charge	Q_{rr}	-	15	-	nC	
Continuous Source Current (Body Diode)	I_S	-	-	-2.2	A	V_D=V_G=0V, V_S=-1.0V

Notes: 1. Pulse width limited by Max. junction temperature.

2. Pulse width≦300us, duty cycle≦2%.

3. Surface mounted on 1 in^2 copper pad of FR4 board; 270℃/W when mounted on Min. copper pad.

Characteristics Curve

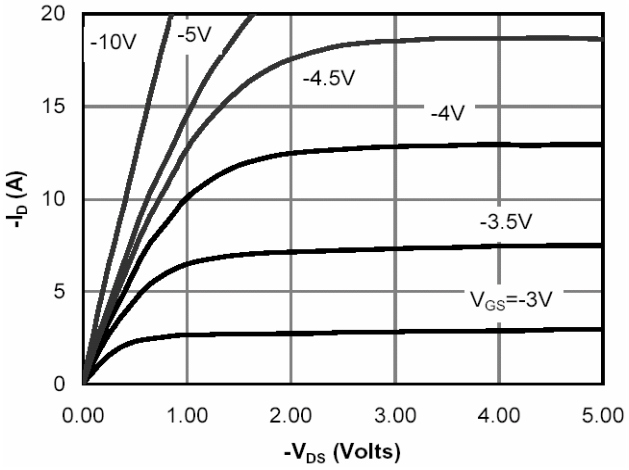


Fig 1. Typical Output Characteristics

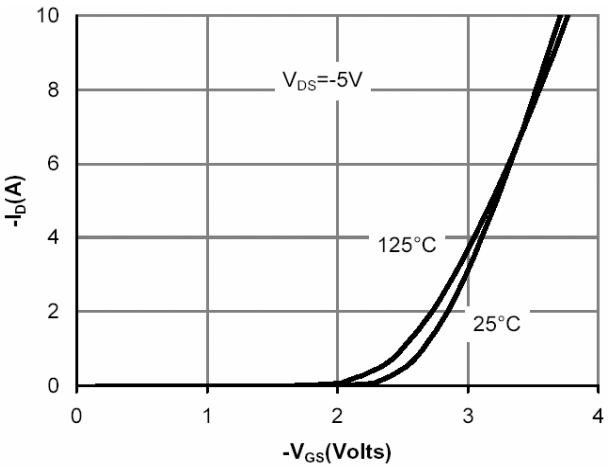


Fig 2. Transfer Characteristics

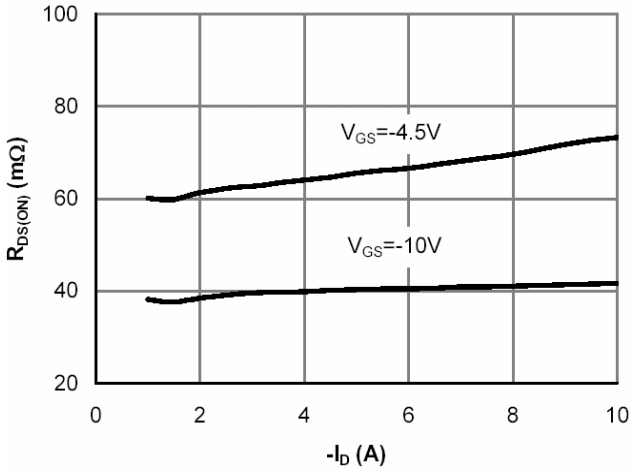


Fig 3. On-Resistance v.s. Drain Current and Gate Voltage

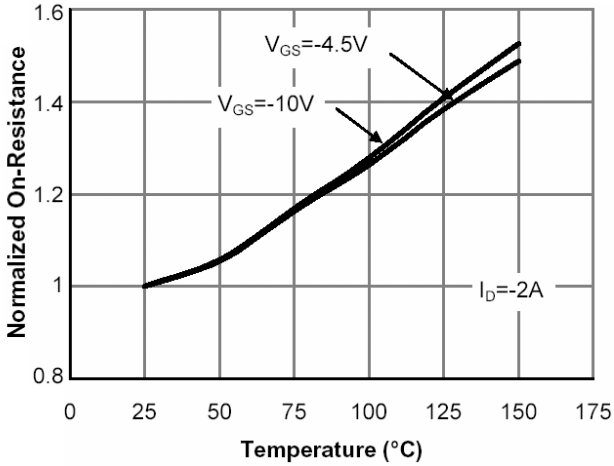


Fig 4. On-Resistance v.s. Junction Temperature

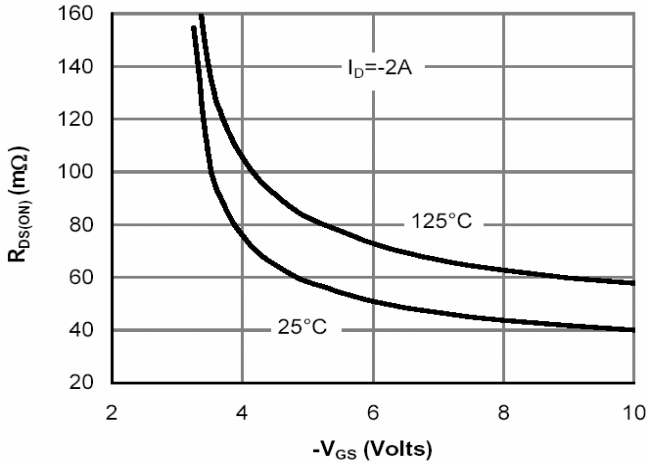


Fig 5. On-Resistance v.s. Gate-Source Voltage

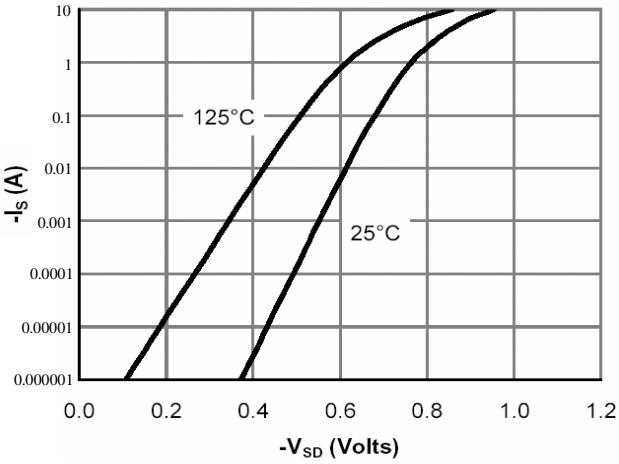


Fig 6. Body Diode Characteristics

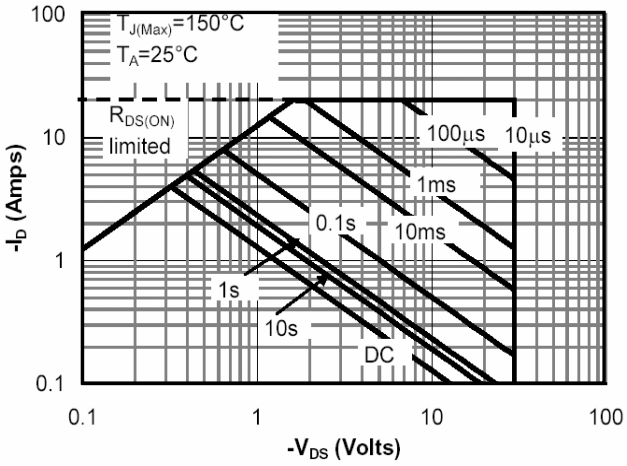


Fig 7. Maximum Safe Operating Area

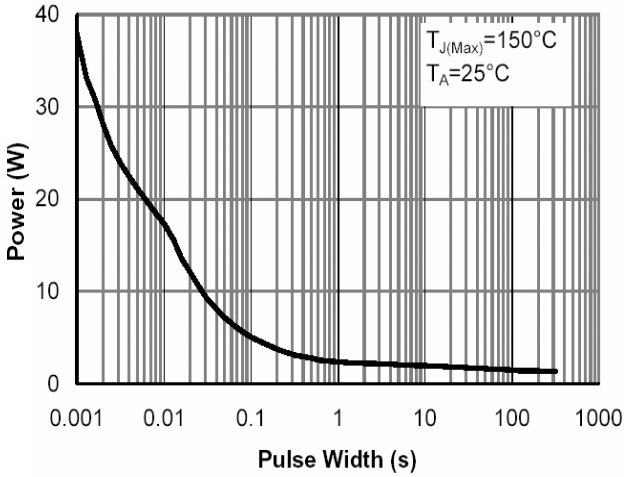


Fig 8. Single Pulse Power Rating Junction-to-Ambient

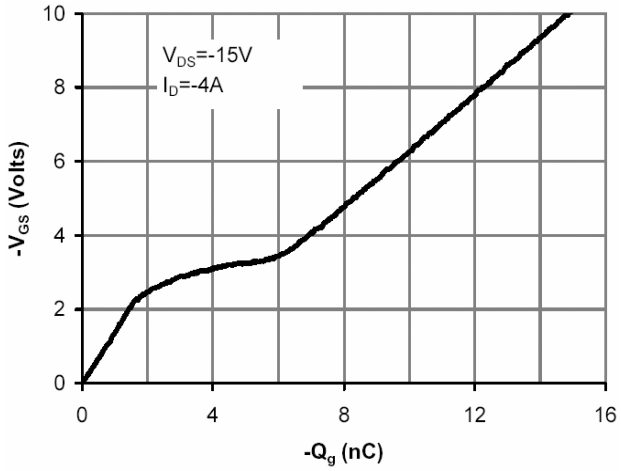


Fig 9. Gate Charge Characteristics

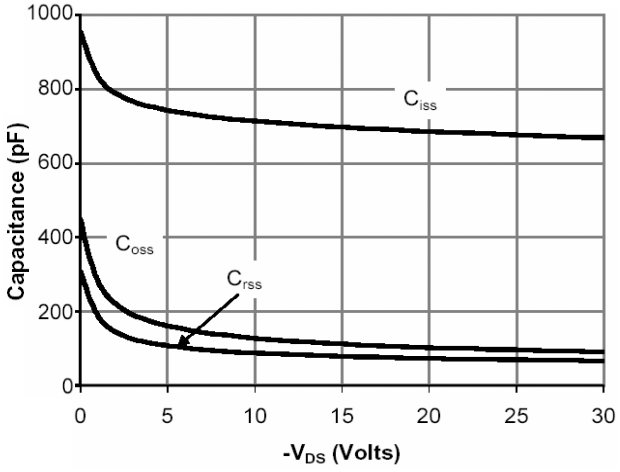


Fig 10. Typical Capacitance Characteristics

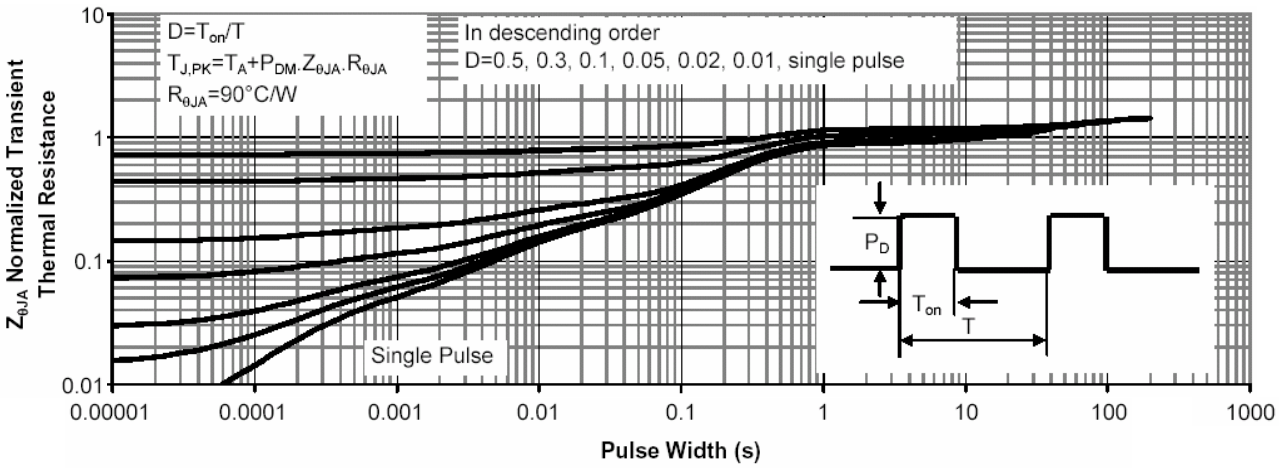


Fig 11. Normalized Maximum Transient Thermal Impedance

Head Office And Factory:
- **Taiwan**: No. 17-1 Tatung Rd. Fu Kou Hsin-Chu Industrial Park, Hsin-Chu, Taiwan, R. O. C.
  TEL : 886-3-597-7061 FAX : 886-3-597-9220, 597-0785
- **China**: (201203) No.255, Jang-Jiang Tsai-Lueng RD. , Pu-Dung-Hsin District, Shang-Hai City, China
  TEL : 86-21-5895-7671 ~ 4 FAX : 86-21-38950165