Pb Free Plating Product

GTM CORPORATION

ISSUED DATE :2006/08/21
REVISED DATE :2006/12/25B

GTC217E

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

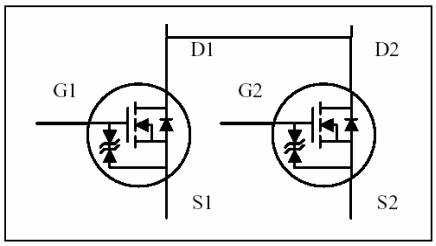
BV_{DSS}	20V
$R_{DS(ON)}$	22mΩ
I_D	7A

Description

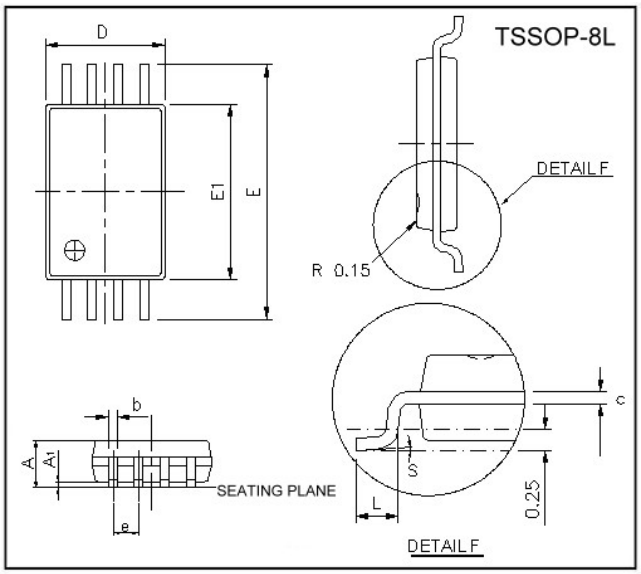
The GTC217E used advanced trench technology to provide excellent on-resistance extremely efficient and cost-effectiveness device.
The GTC217E is universally used for all commercial-industrial applications.

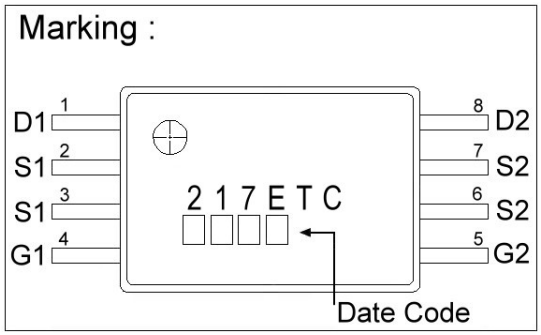
Features

* Lower Gate Charge
*Small Package Outline
*RoHS Compliant



Package Dimensions





REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	-	1.20	E	6.20	6.60
A1	0.05	0.15	E1	4.30	4.50
b	0.19	0.30	e	0.65 BSC	
c	0.09	0.20	L	0.45	0.75
D	2.90	3.10	S	0°	8°

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current[3]	I_D @T_A=25℃	7	A
Continuous Drain Current[3]	I_D @T_A=70℃	5.7	A
Pulsed Drain Current[1,2]	I_{DM}	30	A
Total Power Dissipation	P_D @T_A=25℃	1.5	W
Linear Derating Factor		0.012	W/℃
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +150	℃

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient[3] Max.	Rthj-a	83	℃/W

Electrical Characteristics (Tj = 25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	20	-	-	V	V_{GS}=0, I_D=250uA
Gate Threshold Voltage	$V_{GS(th)}$	0.5	-	1.0	V	V_{DS}=V_{GS}, I_D=250uA
Forward Transconductance	g_{fs}	-	24	-	S	V_{DS}=5V, I_D=7A
Gate-Source Leakage Current	I_{GSS}	-	-	±10	uA	V_{GS}= ±10V
Drain-Source Leakage Current(Tj=25℃)	I_{DSS}	-	-	1	uA	V_{DS}=16V, V_{GS}=0
Drain-Source Leakage Current(Tj=55℃)		-	-	5	uA	V_{DS}=16V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	22	mΩ	V_{GS}=4.5V, I_D=6.6A
		-	-	30		V_{GS}=2.5V, I_D=5.5A
Total Gate Charge[2]	Q_g	-	9.3	-	nC	I_D=7A V_{DS}=10V V_{GS}=4.5V
Gate-Source Charge	Q_{gs}	-	0.6	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	3.6	-		
Turn-on Delay Time[2]	$T_{d(on)}$	-	820	-	ns	V_{DS}=10V I_D=1A V_{GS}=4.5V R_G=6Ω R_L=10Ω
Rise Time	T_r	-	934	-		
Turn-off Delay Time	$T_{d(off)}$	-	860	-		
Fall Time	T_f	-	510	-		
Input Capacitance	C_{iss}	-	231		pF	V_{GS}=0V V_{DS}=10V f=1.0MHz
Output Capacitance	C_{oss}	-	164	-		
Reverse Transfer Capacitance	C_{rss}	-	137	-		

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}	-	15.2	-	ns	I_S=7A, V_{GS}=0V dI/dt=100A/μs
Reverse Recovery Charge	Q_{rr}	-	6.3	-	nC	
Continuous Source Current (Body Diode)	I_S	-	-	2.5	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 FR4 board, t≦10sec.

Characteristics Curve

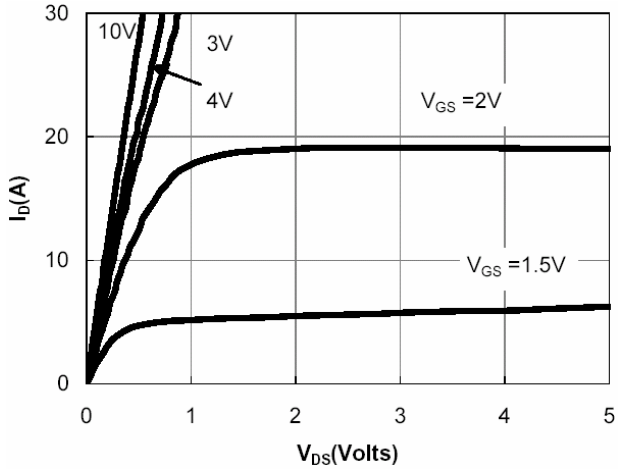


Fig 1. Typical Output Characteristics

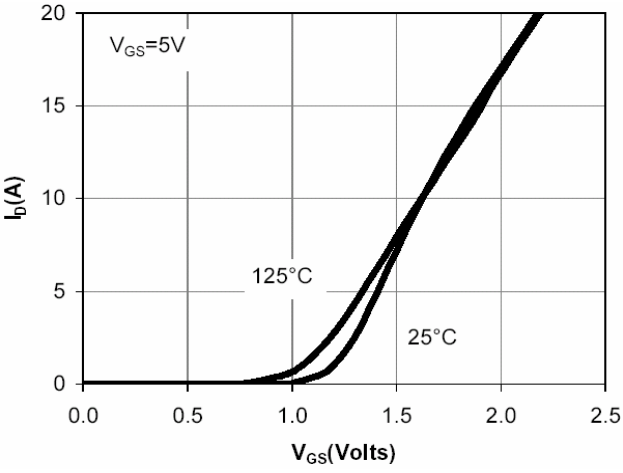


Fig 2. Transfer Characteristics

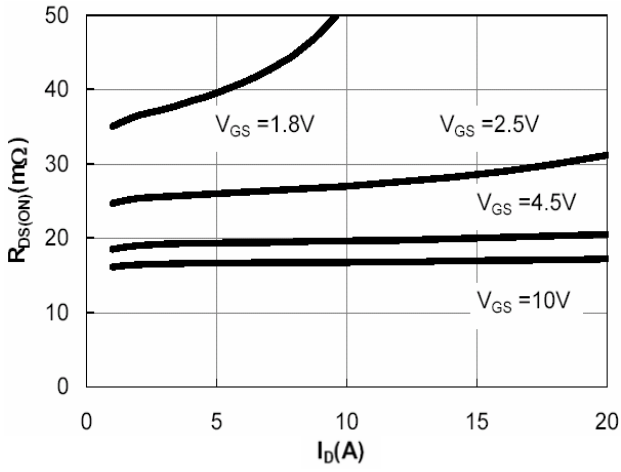


Fig 3. On-Resistance v.s. Drain Current and Gate Voltage

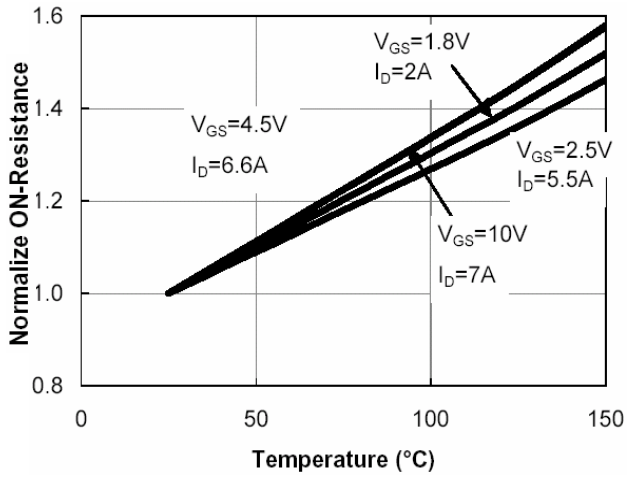


Fig 4. On-Resistance v.s. Junction Temperature

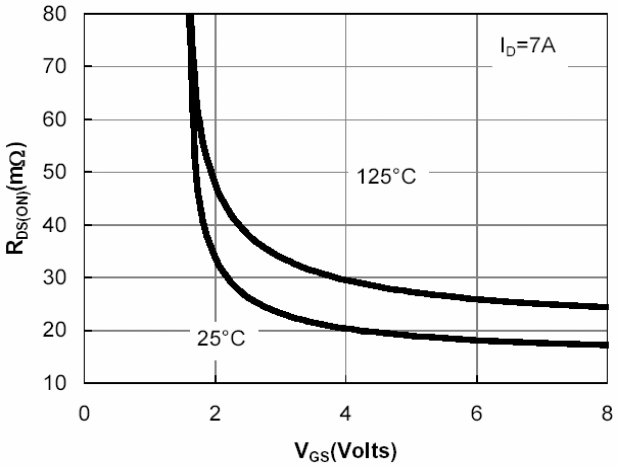


Fig 5. On-Resistance v.s. Gate-Source Voltage

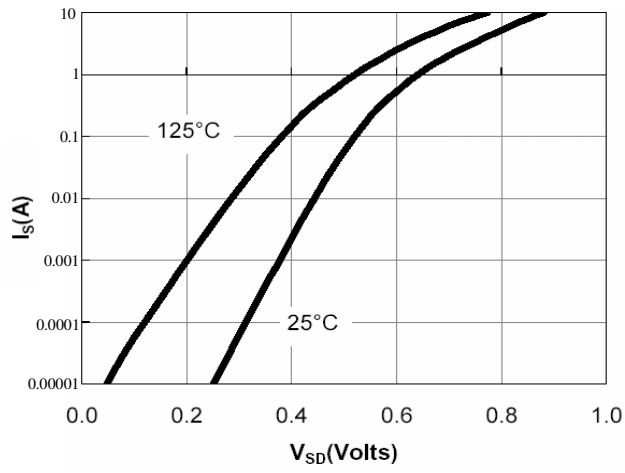


Fig 6. Body Diode Characteristics

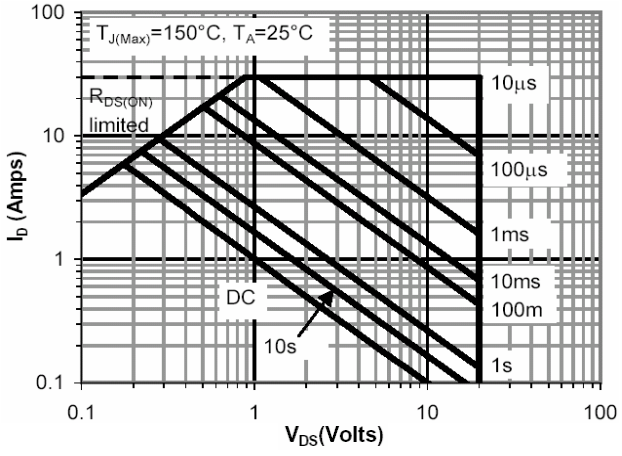


Fig 7. Maximum Safe Operating Area

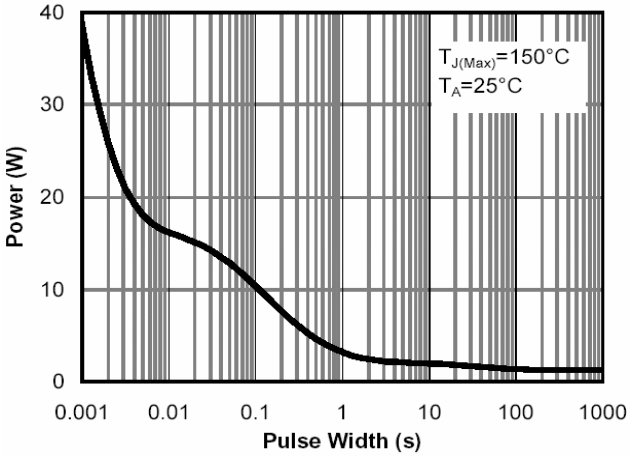


Fig 8. Single Pulse Power Rating Junction-to-Ambient

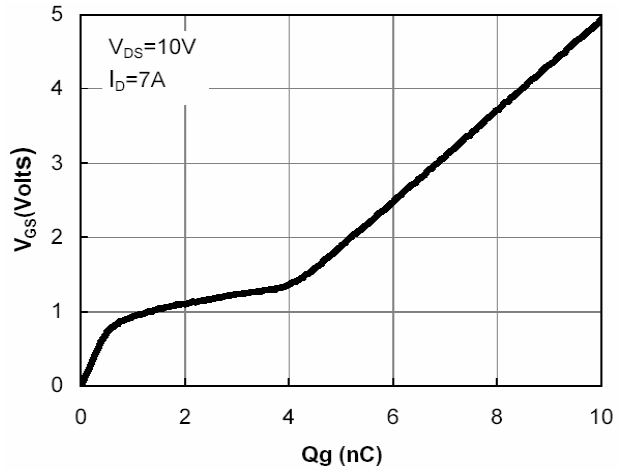


Fig 9. Gate Charge Characteristics

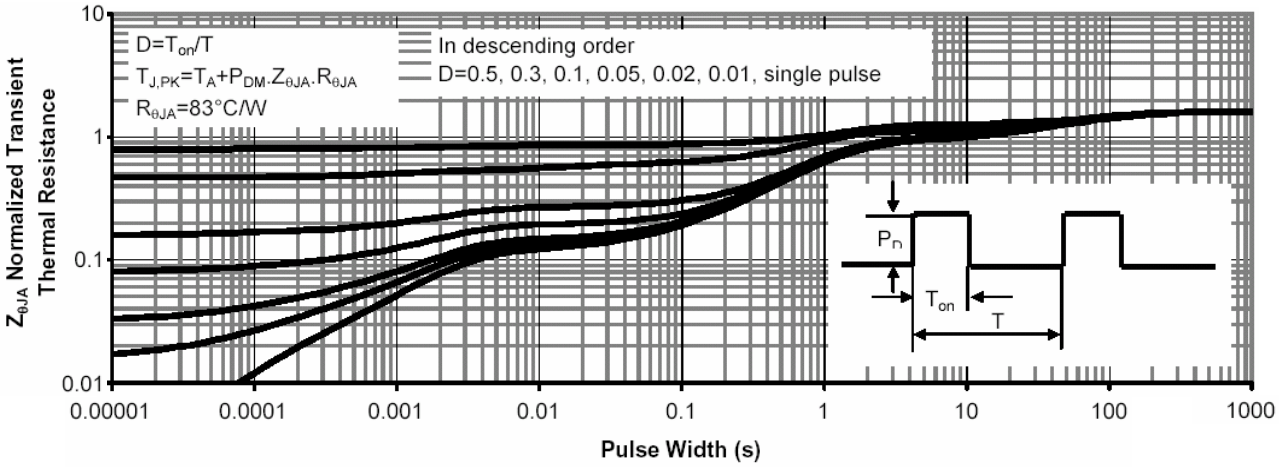


Fig 10. Normalized Maximum Transient Thermal Impedance

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