Pb Free Plating Product

GTM CORPORATION

ISSUED DATE :2006/12/07
REVISED DATE :

GJ494

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BV_{DSS}	30V
$R_{DS(ON)}$	11mΩ
I_D	55A

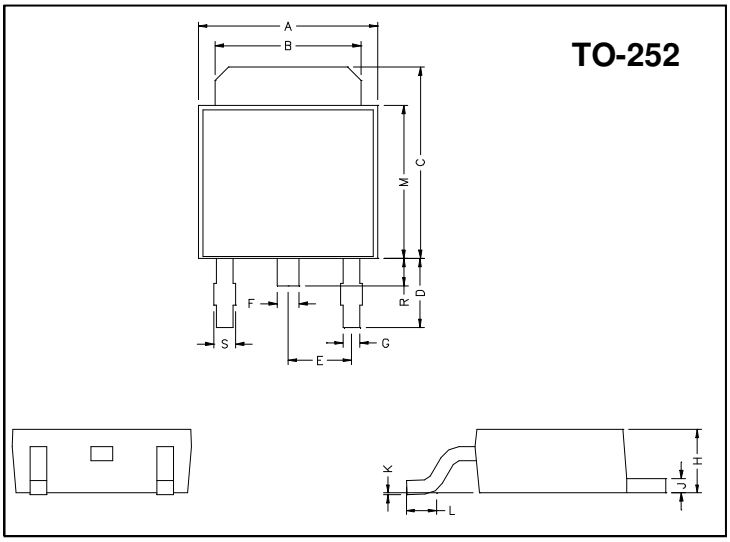
Description

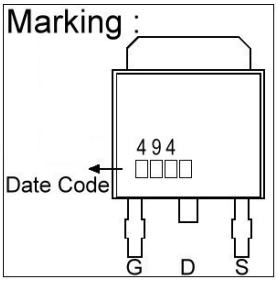
The GJ494 uses advanced trench technology to provide excellent on-resistance and low gate charge.
The TO-252 package is universally preferred for all commercial-industrial surface mount applications and suited for use as a high side switch in SMPS and general purpose applications.

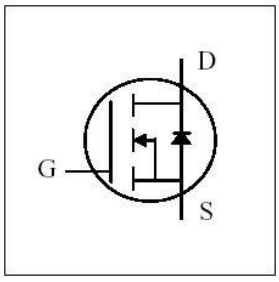
Features

*Simple Drive Requirement
*Lower On-resistance
*Fast Switching Characteristic

Package Dimensions







REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.40	6.80	G	0.50	0.70
B	5.20	5.50	H	2.20	2.40
C	6.80	7.20	J	0.45	0.55
D	2.40	3.00	K	0	0.15
E	2.30 REF.		L	0.90	1.50
F	0.70	0.90	M	5.40	5.80
S	0.60	0.90	R	0.80	1.20

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current, V_{GS}@10V	I_D @Tc=25℃	55	A
Continuous Drain Current, V_{GS}@10V	I_D @Tc=100℃	39	A
Pulsed Drain Current[1]	I_{DM}	120	A
Total Power Dissipation	P_D @Tc=25℃	63	W
Linear Derating Factor		0.42	W/℃
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +175	℃

Thermal Data

Parameter		Symbol	Value	Unit
Thermal Resistance Junction-case	Max.	Rthj-c	2.4	℃/W
Thermal Resistance Junction-ambient	Max.	Rthj-a	50	℃/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	-	2.5	V	V_{DS}=V_{GS}, I_D=250uA
Forward Transconductance	g_{fs}	-	40	-	S	V_{DS}=5V, I_D=20A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±12V
Drain-Source Leakage Current(Tj=25℃)	I_{DSS}	-	-	1	uA	V_{DS}=30V, V_{GS}=0
Drain-Source Leakage Current(Tj=55℃)		-	-	25	uA	V_{DS}=24V, V_{GS}=0
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	-	-	11	mΩ	V_{GS}=10V, I_D=20A
		-	-	13.5		V_{GS}=4.5V, I_D=20A
Total Gate Charge[2]	Q_g	-	22	28	nC	I_D=20A V_{DS}=15V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	3.7	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	2.7	-		
Turn-on Delay Time[2]	$T_{d(on)}$	-	10	-	ns	V_{DS}=15V V_{GS}=10V R_G=3Ω R_L=0.75Ω
Rise Time	T_r	-	6.3	-		
Turn-off Delay Time	$T_{d(off)}$	-	21	-		
Fall Time	T_f	-	2.8	-		
Input Capacitance	C_{iss}	-	1210	1452	pF	V_{GS}=0V V_{DS}=15V f=1.0MHz
Output Capacitance	C_{oss}	-	330	-		
Reverse Transfer Capacitance	C_{rss}	-	85	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage[2]	V_{SD}	-	-	1.0	V	I_S=1A, V_{GS}=0V
Continuous Source Current (Body Diode)	I_S	-	-	55	A	V_D= V_G=0V, V_S=1.0V
Reverse Recovery Time[2]	T_{rr}	-	36	-	ns	I_S=20A, V_{GS}=0V dI/dt=100A/μs
Reverse Recovery Charge	Q_{rr}	-	47	-	nC	

Notes: 1. Pulse width limited by safe operating area.

2. Pulse width≦300us, duty cycle≦2%.

Characteristics Curve

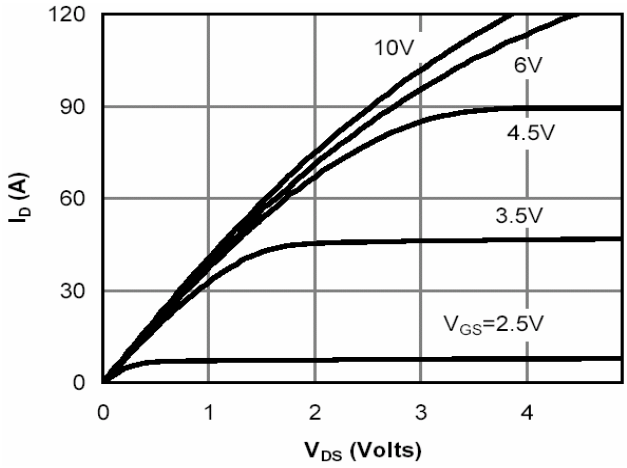


Fig 1. Typical Output Characteristics

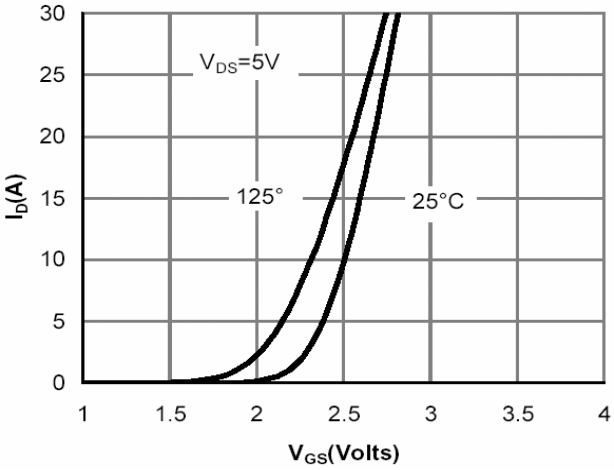


Fig 2. Transfer Characteristics

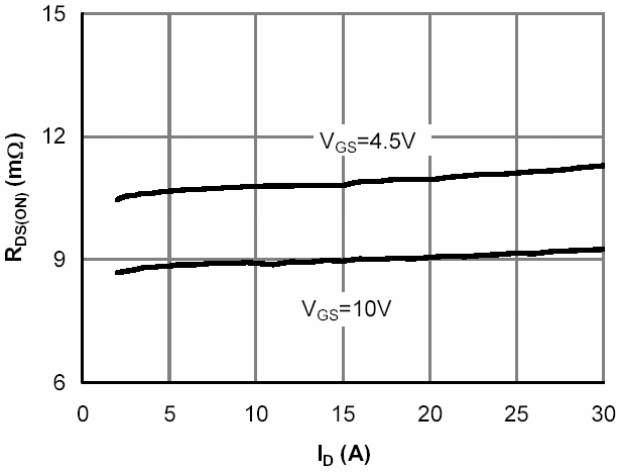


Fig 3. On-Resistance v.s. Drain Current and Gate Voltage

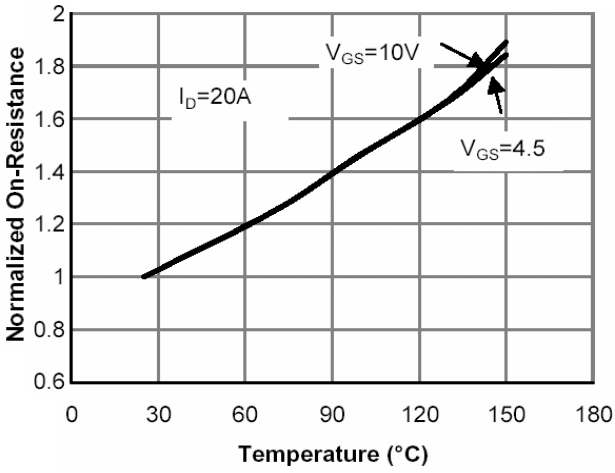


Fig 4. On-Resistance v.s. Junction Temperature

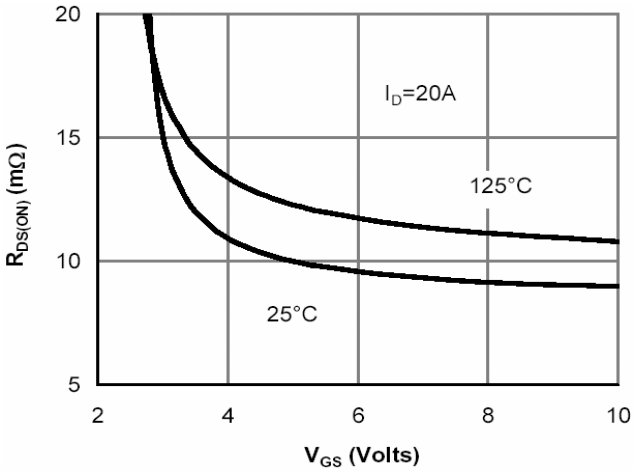


Fig 5. On-Resistance v.s. Gate-Source Voltage

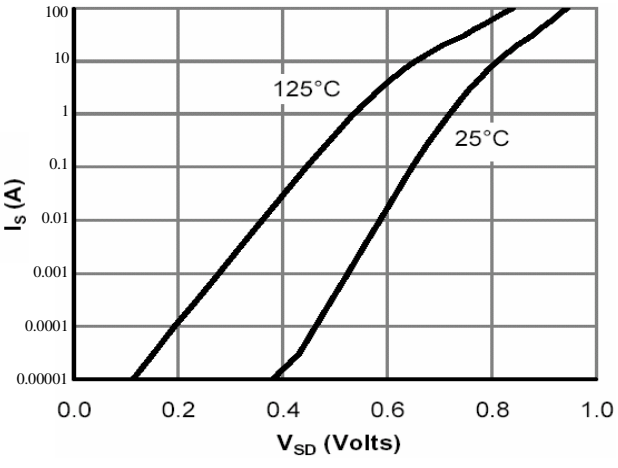


Fig 6. Body Diode Characteristics

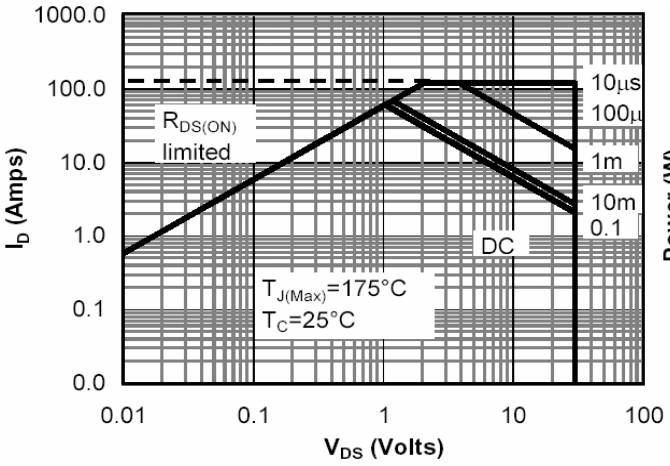


Fig 7. Maximum Safe Operating Area

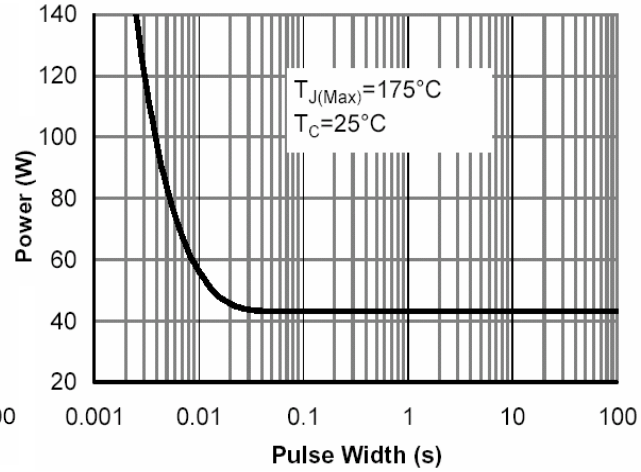


Fig 8. Single Pulse Power Rating Junction-to-Ambient

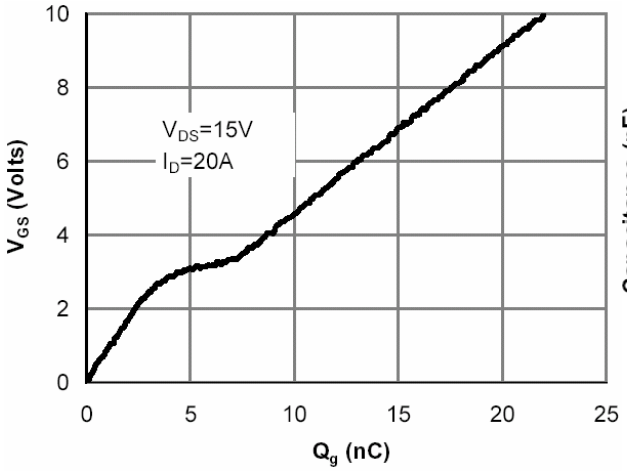


Fig 9. Gate Charge Characteristics

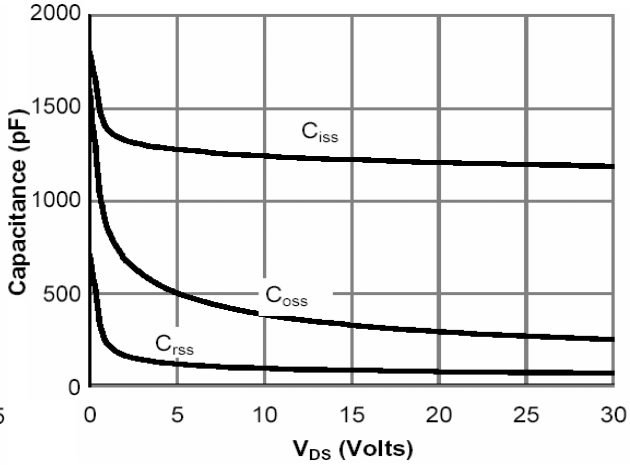


Fig 10. Typical Capacitance Characteristics

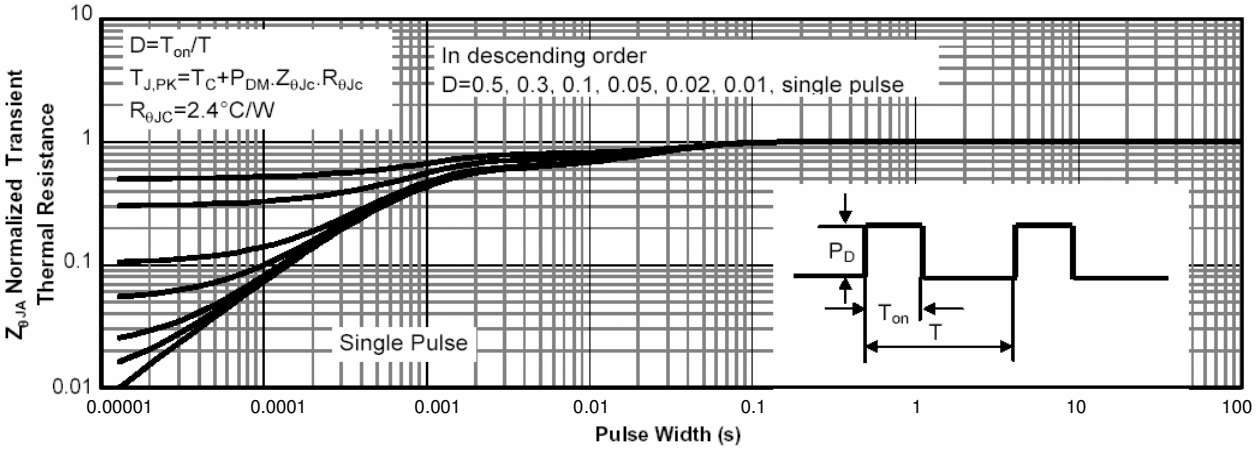


Fig 11. Normalized Maximum Transient Thermal Impedance

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