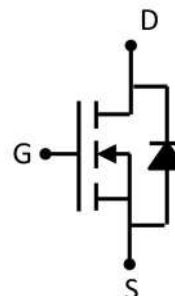


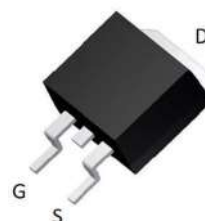
TP3205D N-Channel Enhancement Mosfet

Feature

- 55V,110A
 $R_{DS(ON)} < 8.0m\Omega @ V_{GS}=10V$ TYP:7 m Ω
- Advanced Planar stripe DMOS Technology
- Lead free product is acquired
- Excellent $R_{DS(ON)}$ and Low Gate Charge



Schematic diagram



TO-263 top view

Application

- PWM applications
- Load Switch
- Power management

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	55	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_a=25^\circ\text{C}$)	I_D	110	A
Avalanche Current ⁽¹⁾	I_{AS}	62	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	390	A
Single Pulsed Avalanche Energy ⁽²⁾	E_{AS}	484	mJ
Repetitive Avalanche Energy ⁽²⁾	E_{AR}	20	mJ
Power Dissipation	P_D	200	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.8	$^\circ\text{C/W}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62	$^\circ\text{C/W}$
Junction Temperature	T_J	175	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +175	$^\circ\text{C}$

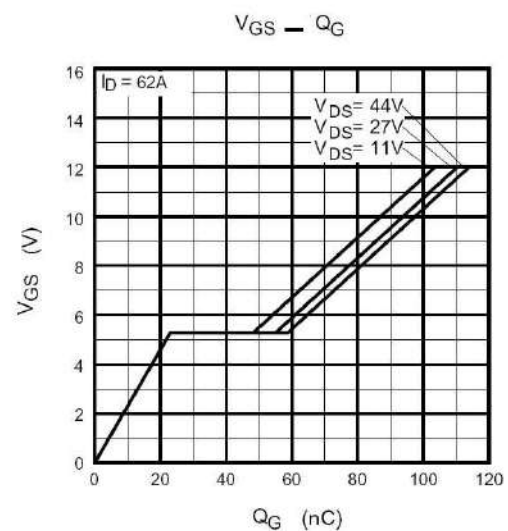
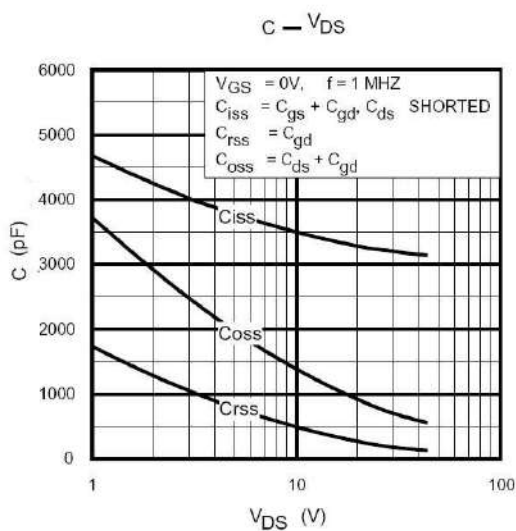
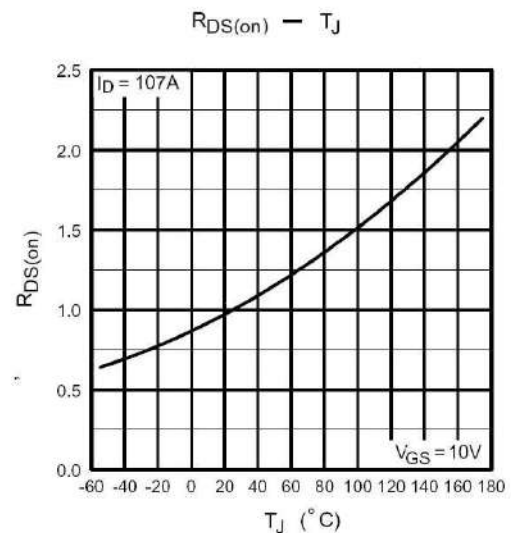
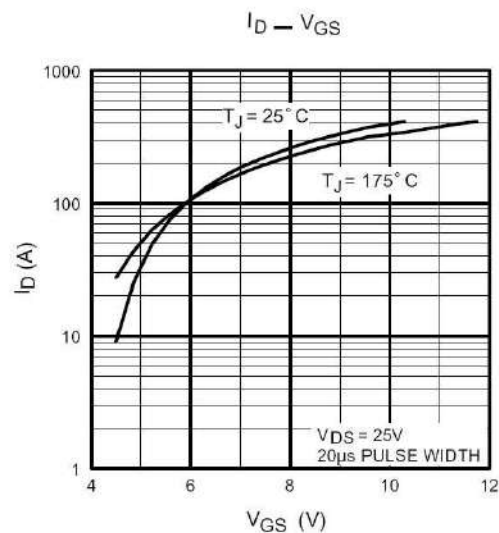
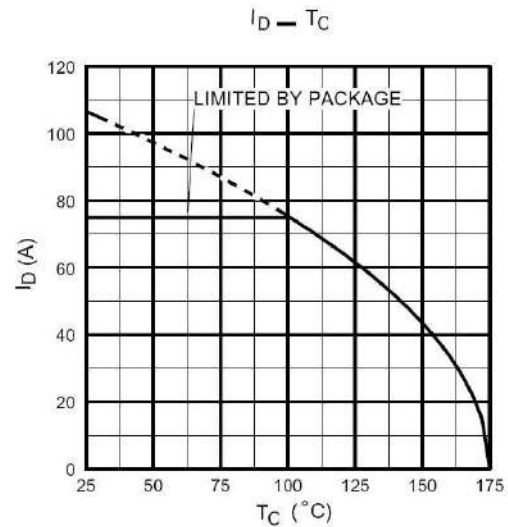
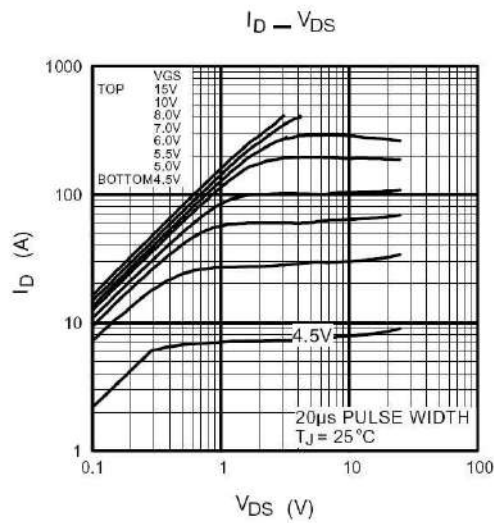
MOSFET ELECTRICAL CHARACTERISTICS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	55	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =55V, V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ± 20V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage ⁽³⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	-	4.0	V
Drain-source on-resistance ⁽³⁾	R _{DS(on)}	V _{GS} =10V, I _D =30A	-	7.0	8.0	mΩ
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1.0MHz	-	3247	-	pF
Output Capacitance	C _{oss}		-	780	-	
Reverse Transfer Capacitance	C _{rss}		-	210	-	
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =28V, I _D =62A,V _{GS} =10V, R _G =4.5Ω	-	14	-	ns
Turn-on rise time	t _r		-	101	-	
Turn-off delay time	t _{d(off)}		-	50	-	
Turn-off fall time	t _f		-	65	-	
Total Gate Charge	Q _g	V _{DS} =44V, I _D =62A, V _{GS} =10V	-	-	146	nC
Gate-Source Charge	Q _{gs}		-	-	35	
Gate-Drain Charge	Q _{gd}		-	-	54	
Source-Drain Diode characteristics						
Diode Forward voltage ⁽³⁾	V _{DS}	V _{GS} =0V, I _S =62A	-	-	1.3	V
Diode Forward current ⁽⁴⁾	I _S		-	-	110	A
Body Diode Reverse Recovery Time	trr	T _J =25° , IF=62A,di/dt=100A/us		69		ns
Body Diode Reverse Recovery Charge	Qrr	T _J =25° , IF=62A,di/dt=100A/us		143		nc

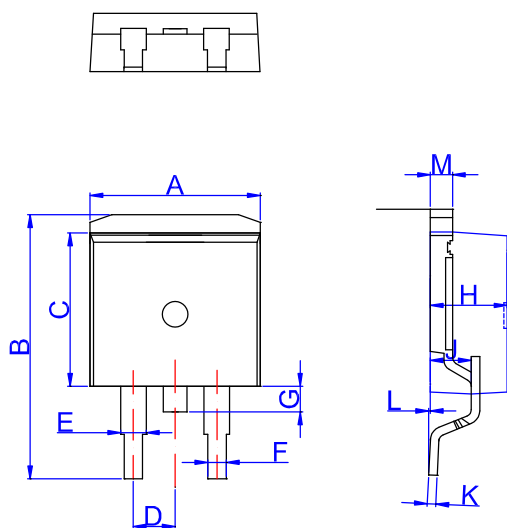
Notes:

1. Repetitive Rating: pulse width limited by maximum junction temperature
2. EAS Condition: $T_J = 25^{\circ}\text{C}, V_{DD} = 50V, R_G = 25\Omega, L = 0.5\text{Mh}, I_{AS} = 44A$
3. Pulse Test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
4. Surface Mounted on FR4 Board, $t \leq 10\text{ sec}$

Typical Electronic and Thermal Characteristics



TO-263 Package Information



TO-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053