

**DESCRIPTION**

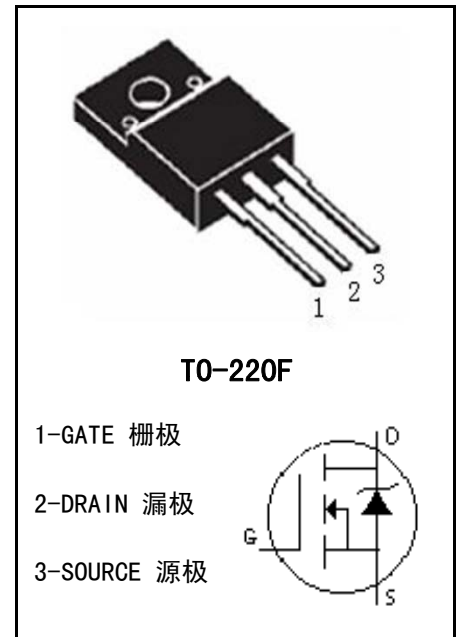
- ELECTRONIC BALLAST
- ELECTRONIC TRANSFORMER
- SWITCH MODE POWER SUPPLY

**FEATURES:**

- LOW THERMAL RESISTANCE
- HIGH INPUT RESISTANCE
- FAST SWITCHING
- ROHS COMPLIANT

**MAXIMUM RATINGS (T<sub>c</sub>=25°C)**

PARAMETER	SYMBOL	VALUE	UNIT
Drain-source Voltage	VDS	650	V
gate-source Voltage	VGS	±30	V
Continuous Drain Current (T <sub>C</sub> =25°C)	ID	7	A
Drain Current-Pulsed	IDM	20	A
Total Dissipation	PD	28	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55-150	°C
Single Pulse Avalanche Energy (I <sub>AS</sub> =7A)	EAS	95	mJ

**MECHANICAL**

**ELECTRONIC CHARACTERISTICS (T<sub>c</sub>=25°C)**

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Drain-source Breakdown Voltage	BVDSS	VGS=0V, ID=250 μA	650		V
Gate Threshold Voltage	VGS (TH)	VGS=VDS, ID=250 μA	2.5	4.5	V
Drain-source Leakage Current	IDSS	VDS=650V, VGS=0V		1	uA
Drain-Source Diode Forward Voltage	VSD	VGS=0V, IS=7A		1.3	V
Gate-body Leakage Current (VDS = 0)	IGSS	VGS=±30V		±100	nA
Static Drain-source On Resistance	RDS (ON)	VGS=10V, ID=3.5A		700	mΩ
Thermal Resistance Junction-case	RthJ-c			4.46	°C/W

**■ DYNAMIC CHARACTERISTICS (T<sub>c</sub>=25°C)**

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1.0MHZ	-	380	-	pF
output Capacitance	C <sub>oss</sub>		-	110	-	pF
Reverse Transfer Capacitance	C <sub>rss</sub>		-	7	-	pF

**■ SWITCHING CHARACTERISTICS (T<sub>c</sub>=25°C)**

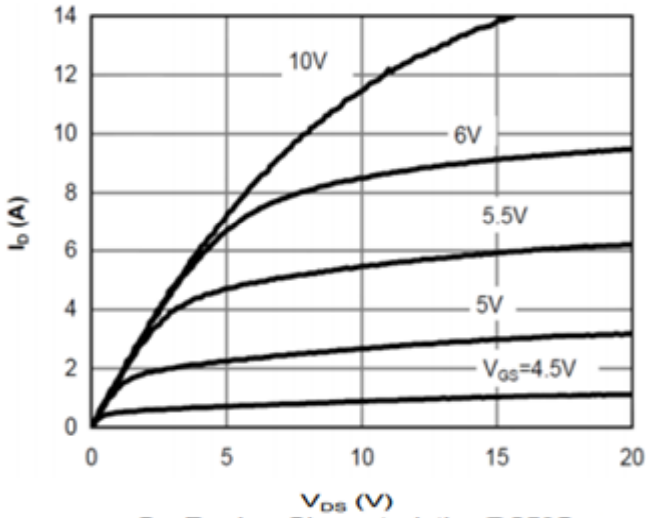
CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =400V, I <sub>D</sub> =3.5A, R <sub>G</sub> =20Ω, V <sub>GS</sub> =10V	-	13	-	ns
Turn-On Rise Time	t <sub>r</sub>		-	10	-	ns
Turn-Off Delay Time	t <sub>d(off)</sub>		-	85	-	ns
Turn-Off Rise Time	t <sub>f</sub>		-	14	-	ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =480V, I <sub>D</sub> =3.5A, V <sub>GS</sub> =10V	-	25	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	2	-	nC
Gate-Drain Charge	Q <sub>gd</sub>		-	2.7	-	nC

**■ DRAIN-SOURCE DIODE MAXIMUM RATINGS AND CHARACTERISTICS (T<sub>c</sub>=25°C)**

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Max. Diode Forward Current	I <sub>s</sub>		-	-	7	A
Max. Pulsed Forward Current	I <sub>SM</sub>		-	-	20	A
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =7A	-	-	1.3	V
Reverse Recovery Time	t <sub>rr</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =3.5A, dI <sub>F</sub> /dt=100A/μs,	-	190	-	ns
Reverse Recovery Charge	Q <sub>rr</sub>		-	2.3	-	μC

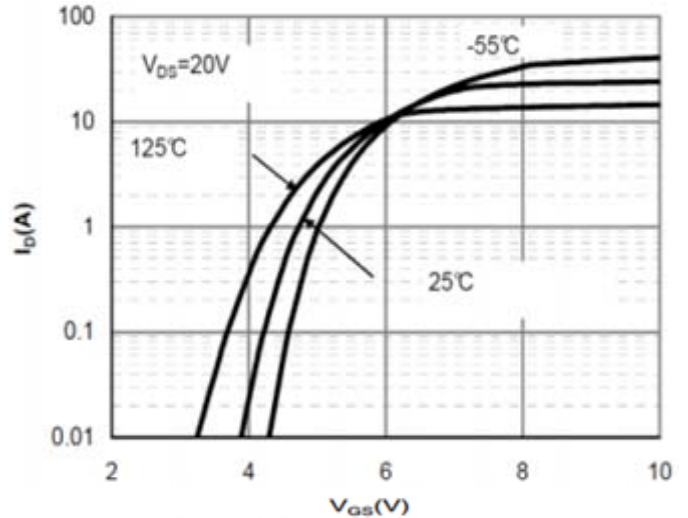


CHARACTERISTICS CURVE



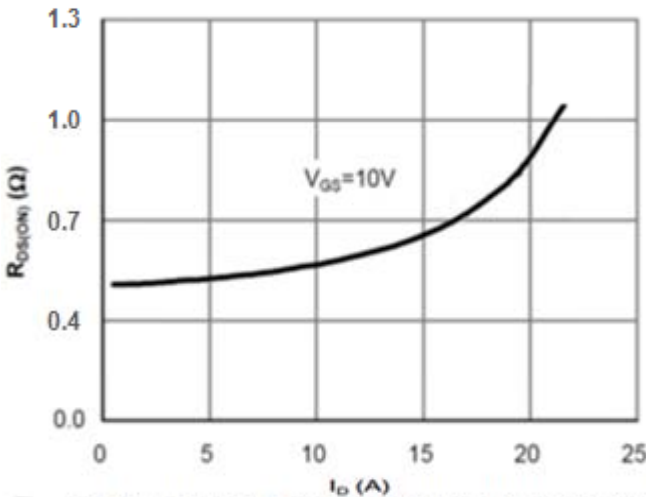
On-Region Characteristics@25°C

Output Characteristic



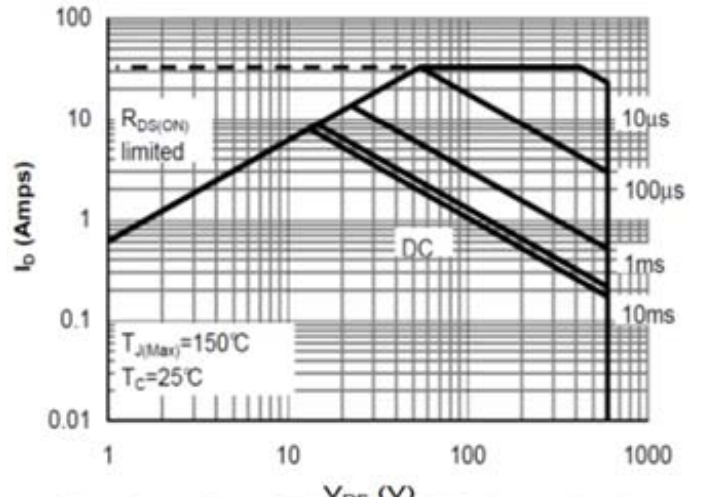
Transfer Characteristics

Transfer Characteristic



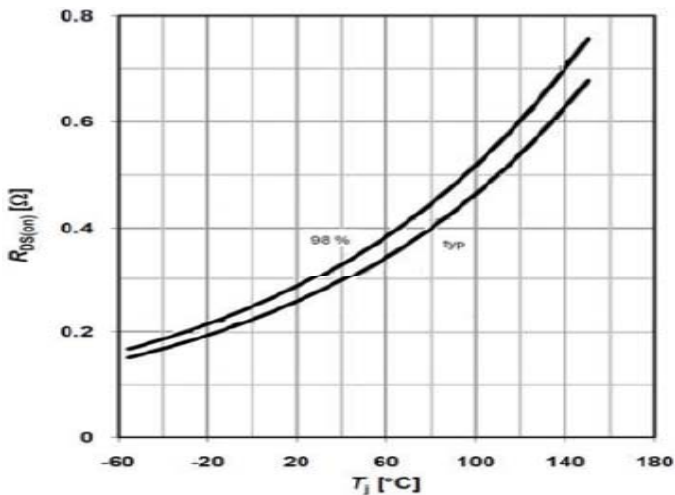
On-Resistance vs. Drain Current and Gate Voltage

On Resistance Vs Drain Current

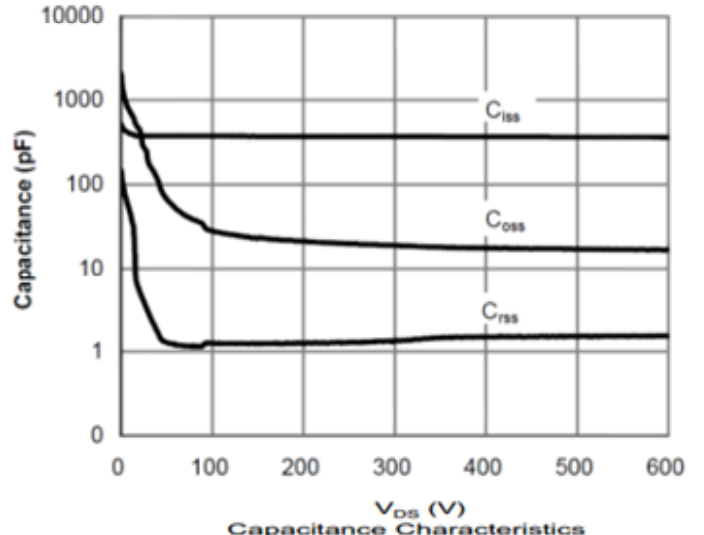


Maximum Forward Biased Safe Operating Area

Safe Operating Area



On Resistance Vs Junction Temperature

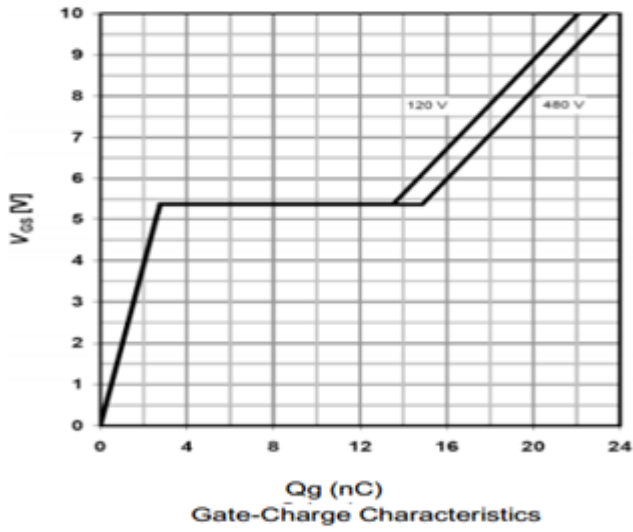


Capacitance Characteristics

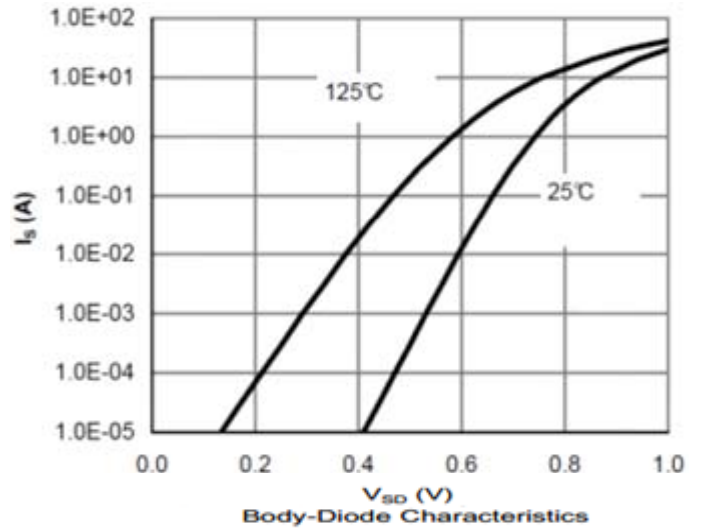
Capacitance



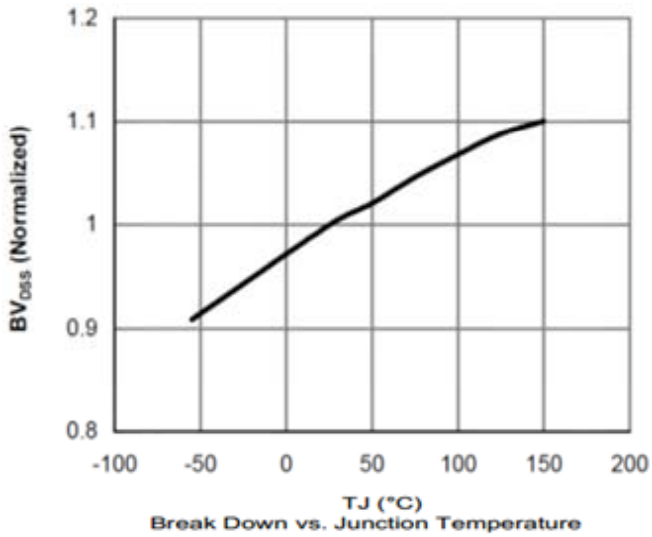
CHARACTERISTICS CURVE



Gate Charge Waveform



Source-Drain Diode Forward Voltage



Breakdown Voltage Vs Junction Temperature



TO-220F MECHANICAL DATA

UNIT: mm

SYMBOL	MIN	NOM	MAX	SYMBOL	MIN	NOM	MAX
A	4.5		4.9	E1	6.5	7	7.5
A1	2.3		2.9	e	2.44	2.54	2.64
b	0.65		0.9	L	12.5		14.3
b1	1.1		1.7	L1	9.45		10.05
b2	1.2		1.4	L2	15		16
c	0.35		0.65	L3	3.2		4.4
D	14.5		16.5	ΦP	3		3.3
D1	6.1		6.9	Q	2.5		2.9
E	9.6		10.3				

