

Features

Low gate charge
 Improved dv/dt capability
 RoHS compliant
 JEDEC Qualification

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	500	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	$T_C = 25$	A
		$T_C = 100$	A
Pulsed Drain Current ^(Note 1)	I_{DM}	52	A
Single Pulse Avalanche Energy ^(Note 2)	E_{AS}	657	mJ
Repetitive Avalanche Current ^(Note 1)	I_{AR}	13	A
Repetitive Avalanche Energy ^(Note 1)	E_{AR}	5.2	mJ
Power Dissipation	P_D	$T_C = 25$	W
		Derate above 25	W/
Peak Diode Recovery dv/dt ^(Note 3)	dv/dt	4.5	V/ns

Electrical Characteristics : $T_C=25$, unless otherwise noted

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
OFF						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0 V, I_D = 250 \mu A$	500	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 500 V, V_{GS} = 0 V$	--	--	1	μA
		$V_{DS} = 400 V, T_C = 125 \text{ }^\circ C$	--	--	10	μA
Forward Gate-Source Leakage Current	I_{GSSF}	$V_{GS} = 30 V, V_{DS} = 0 V$	--	--	100	nA
Reverse Gate-Source Leakage Current	I_{GSSR}	$V_{GS} = -30 V, V_{DS} = 0 V$	--	--	-100	nA

ON						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	3.0	--	5.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10 V, I_D = 6.5 A$	--	0.38	0.48	
Forward Transconductance ^(Note 4)	g_{FS}	$V_{DS} = 30 V, I_D = 6.1 A$	0.1	0.165	0.23	mA/V

Note :

1. Repeated rating : Pulse width limited by safe operating area
2. $L=7mH, I_{AS} = 13A, V_{DD} = 50V, R_G = 25 \text{ } \mu\Omega$, Starting $T_J= 25 \text{ }^\circ C$, not subject to production test verified by design/characterization
3. $I_{SD} = 13A, di/dt = 10 \text{ } \mu A/\mu s, V_{DD} = 50V, V_{DS} = 50V$, Starting $T_J= 25 \text{ }^\circ C$
4. $V_{GS} = 10V, V_{DS} = 50V, I_D = 6.5A$, Starting $T_J= 25 \text{ }^\circ C$
5. Essentially Independent of Operating Temperature Typical Characteristics

Fig. 1 Output Characteristics

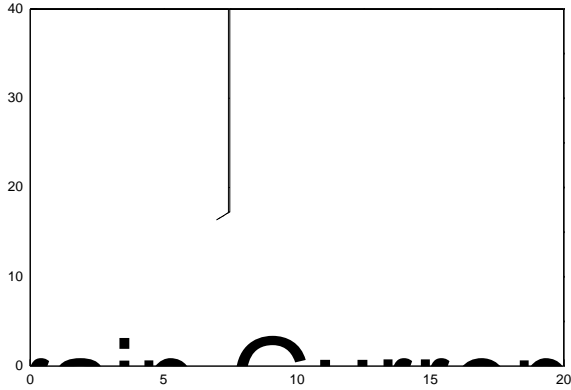


Fig. 2 Transfer Characteristics

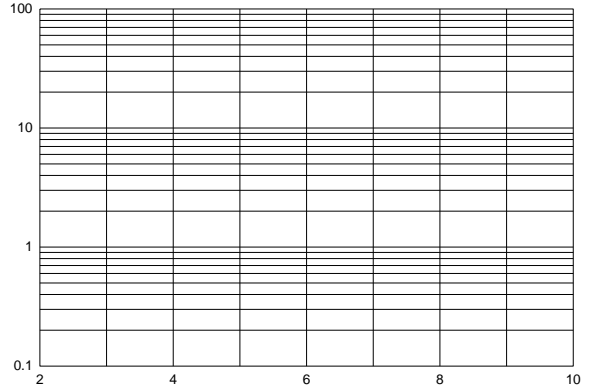


Fig. 3 On-Resistance vs. Drain Current and Gate voltage

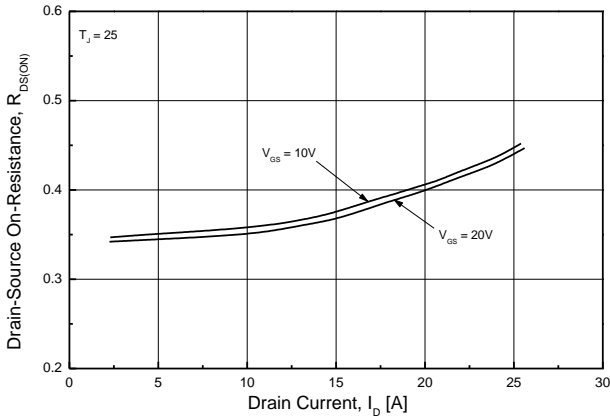


Fig. 4 Body Diode Forward Voltage vs. Source Current and Temperature

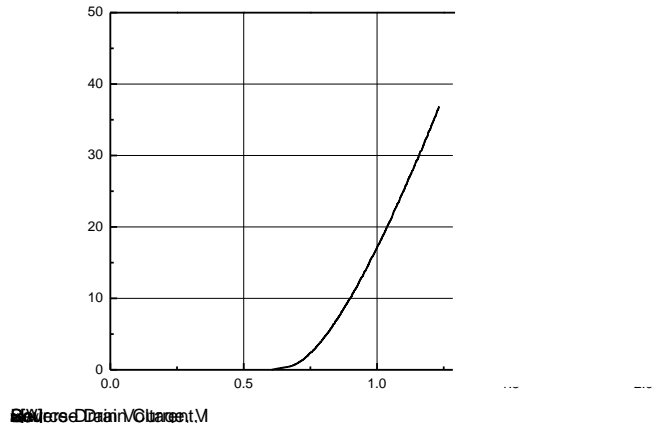


Fig. 5 Capacitance Characteristics

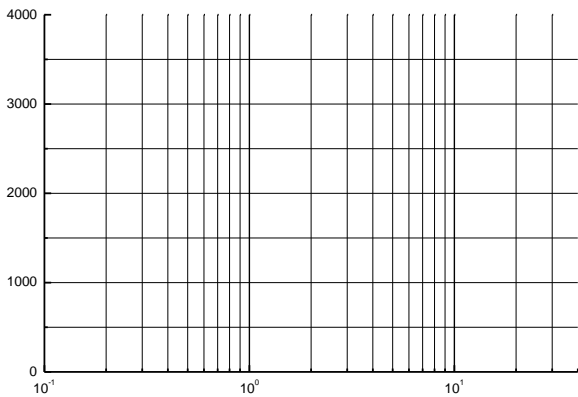


Fig. 6 Gate Charge Characteristics

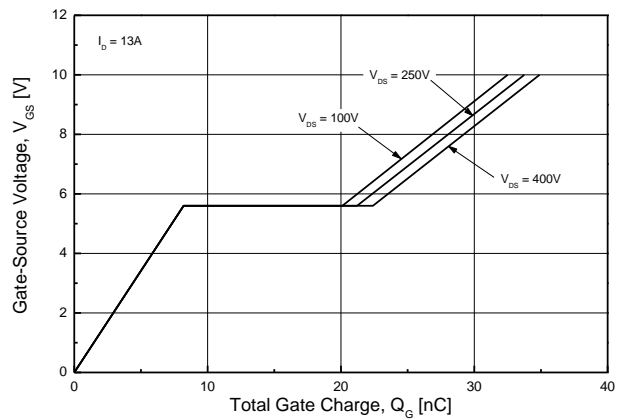


Fig. 7 Breakdown Voltage vs. Temperature

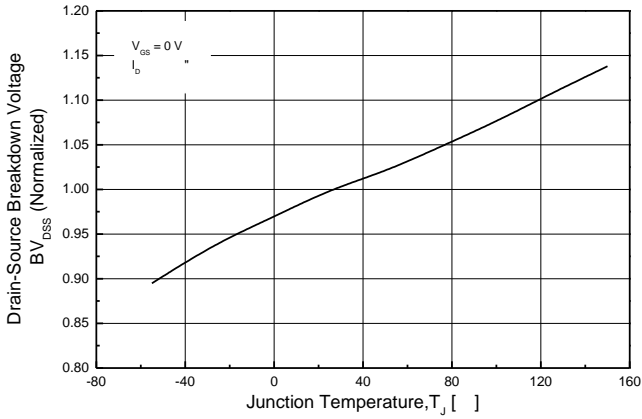
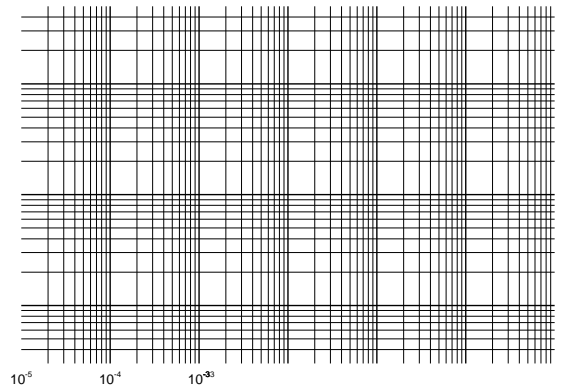
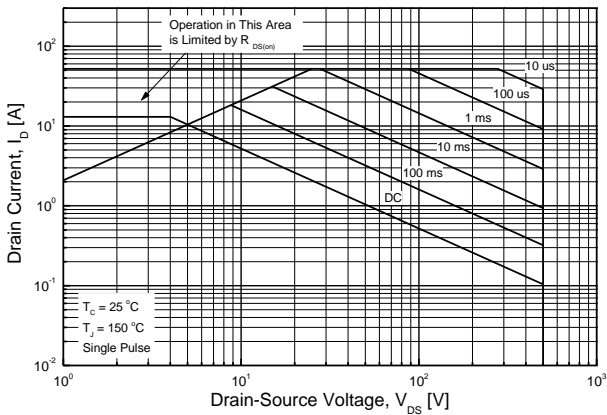
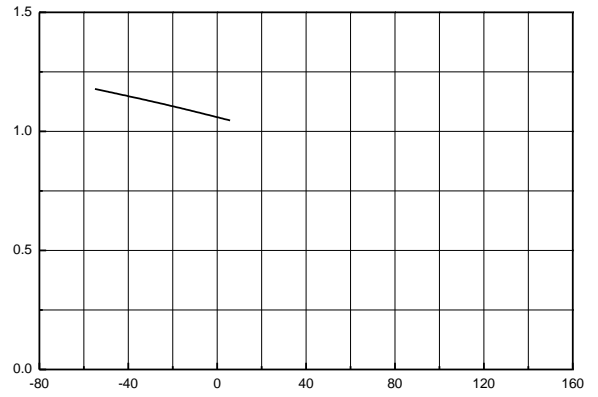
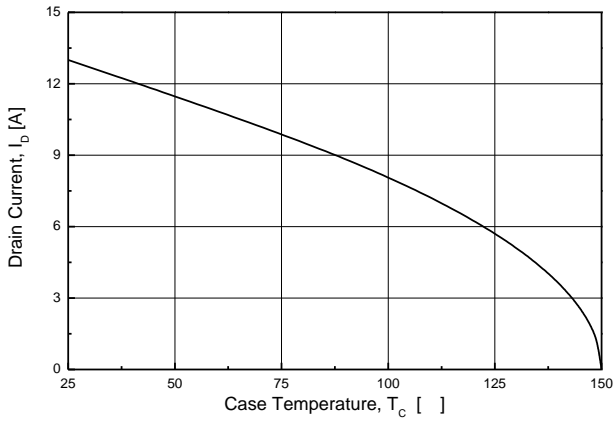
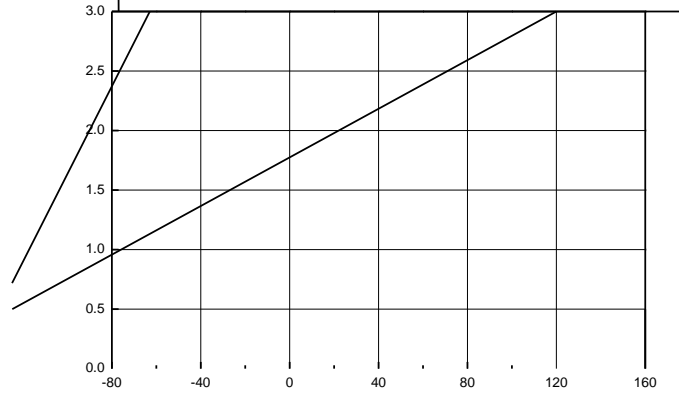
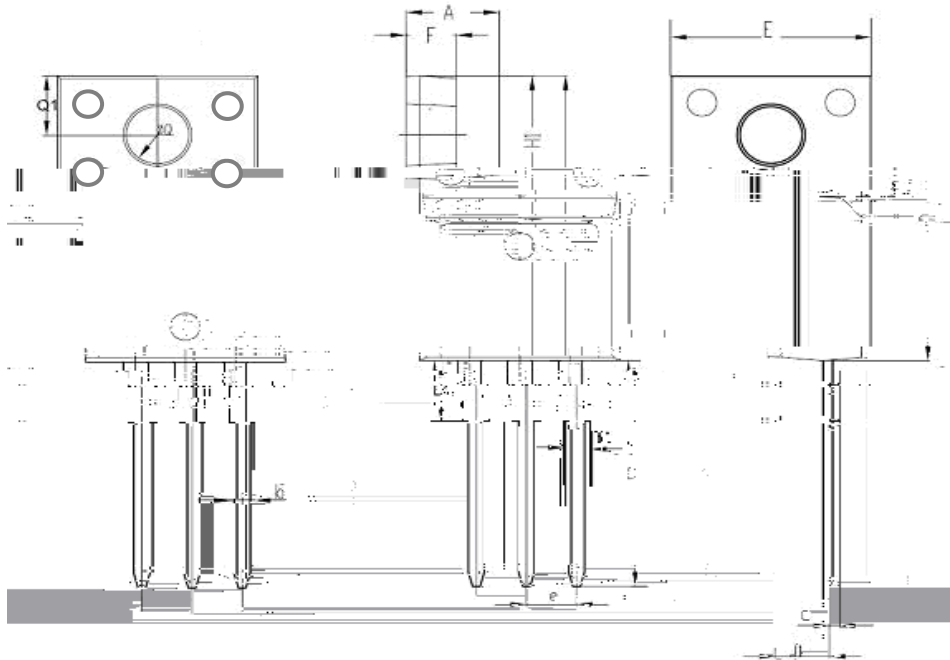


Fig. 8 On-



10F1 69.04 Tf1 0 0 1 1792.75 198.11 Tm0 a31-0.6.8 Tcf(-3)l TJETOBT/F1 69.04 Tf1 0 0 1 1792.22420/F1 69/

TO-220F-3L MECHANICAL DATA



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.178	0.194	4.53	4.93	
b	0.028	0.036	0.71	0.91	
C	0.018	0.024	0.45	0.60	
D	0.617	0.633	15.67	16.07	
E	0.392	0.408	9.96	10.36	
e	0.100 TYP.		2.54TYP.		
H1	0.256	0.272	6.50	6.90	
J1	0.101	0.117	2.56	2.96	
L	0.503	0.519	12.78	13.18	
	0.117	0.133	2.98	3.38	
b1	0.045	0.055	1.15	1.39	
L1	0.114	0.130	2.9	3.3	
Q1	0.122	0.138	3.10	3.50	
F	0.092	0.108	2.34	2.74	

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