



**Maximum Ratings**  $T_j = 25$  unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Breakdown Voltage	$V_{DS}$	100	V
DC collector current, limited by $T_{jmax}$ $T_C = 25^\circ C$ $T_C = 100^\circ C$	$I_D$	120 110	A
Pulsed drain current, $T_C = 25^\circ C$ , $t_p$ limited by $T_{jmax}$	$I_{DM}$	480	A
	$E_{AS}$	306	mJ
Gate source voltage	$V_{GS}$	$\pm 20$	V
Power dissipation $T_C = 25^\circ C$	$P_{tot}$	236	W
Operating junction temperature	$T_j, T_{stg}$	-55...+150	$^\circ C$

**Thermal Resistance**

Parameter	Symbol	Max	Unit
Thermal resistance, junction - case	R (j-c)	0.54	$^\circ C/W$
Thermal resistance, junction ambient(minimal footprint)	R (j-a)	70	$^\circ C/W$

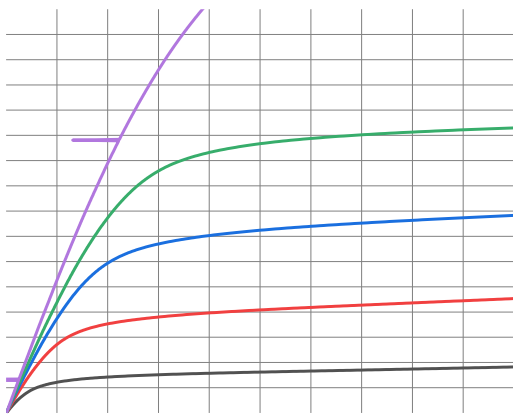
**Electrical Characteristics**  $T_j = 25$  unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
<b>Static Characteristics</b>						
Drain to Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = 250 A$	100	108	-	V
G-S Threshold Voltage	$V_{GS(th)}$	$V_{GS} = V_{CS}, I_D$	2.0	3.0	4.0	V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 100V, V_{GS} = 0V$ $T_j = 25^\circ C$ $T_j = 125^\circ C$	- -	0.05 10	1 100	
G-S Leakage Current	$I_{GSS}$	$V_{GS} = 20V, V_{DS} = 0V$	-	$\pm 10$	$\pm 100$	nA
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 50A$ TO-220 TO-263	-	3.4 3.2	4.2 4.0	m
Transconductance	$g_{fs}$	$V_{DS} = 5V, I_D = 50A$	-	50	-	S

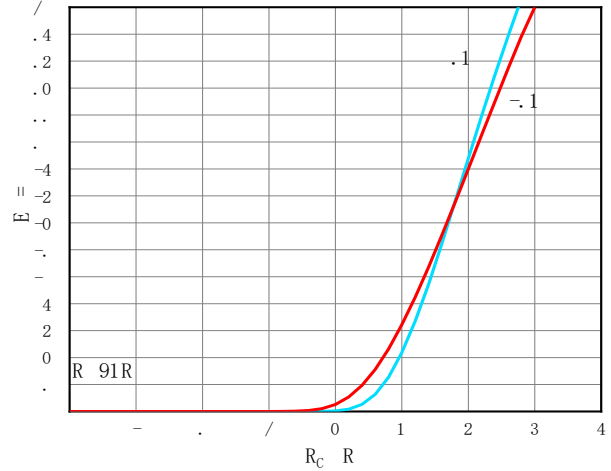
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
<b>Dynamic</b>						
Input capacitance	$C_{iss}$	$V_{DS} = 50V, V_{GS} = 0V,$ $f = 1MHz$	-	4700	-	pF
Output capacitance	$C_{oss}$		-	1080	-	
Reverse transfer capacitance	$C_{rss}$		-	31	-	
Gate Total Charge	$Q_g$	$V_{GS}=10V, V_{DS}=50V,$ $I_D=20A, f=1MHz$		67		nC
Gate-Source charge	$Q_{gs}$			27		
Gate-Drain charge	$Q_{gd}$			11		
Turn-on Delay Time	$t_{d(on)}$					

**Typical Performance Characteristics**

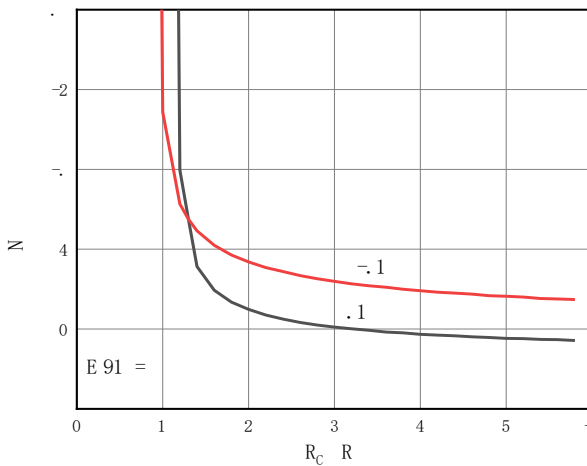
**Fig1: Output Characteristics**



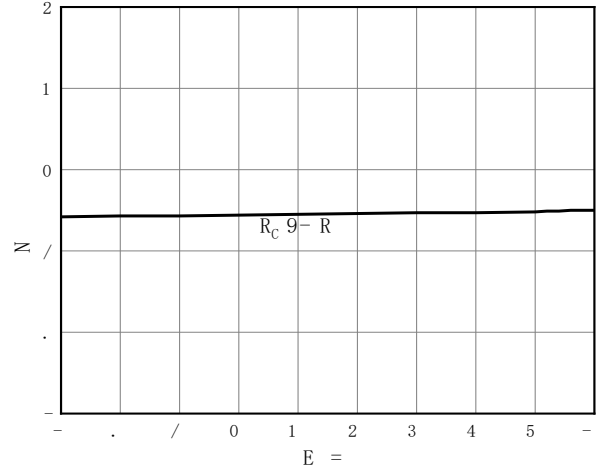
**Fig2: Transfer Characteristics**



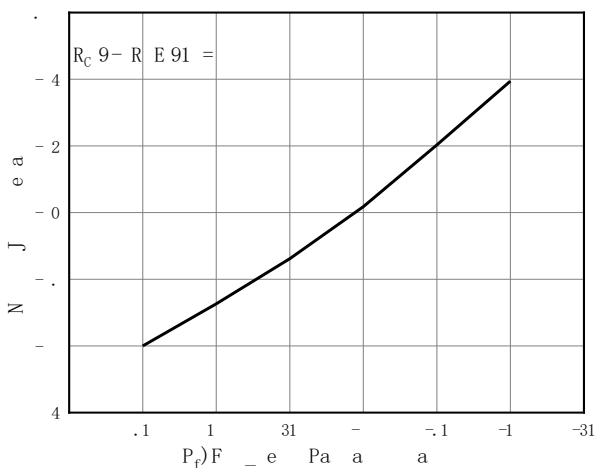
**Fig3: Rds(on) vs Gate Voltage**



**Fig4: Rds(on) vs Drain Current and Gate Voltage**



**Fig5: Rds(on) vs. Temperature**



**Fig6: Capacitance Characteristics**

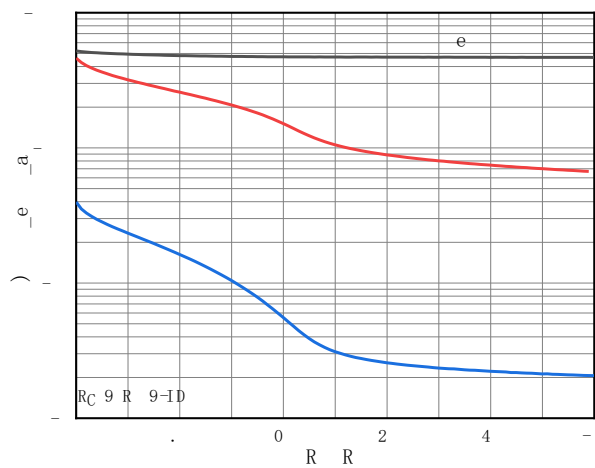


Fig7: Gate Charge Characteristics

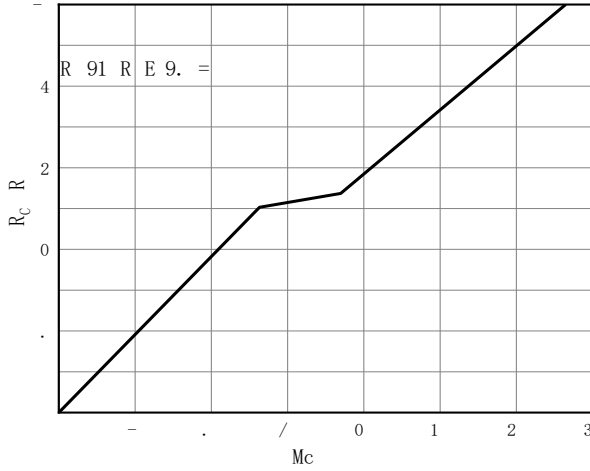


Fig8: Body-diode Forward Characteristics

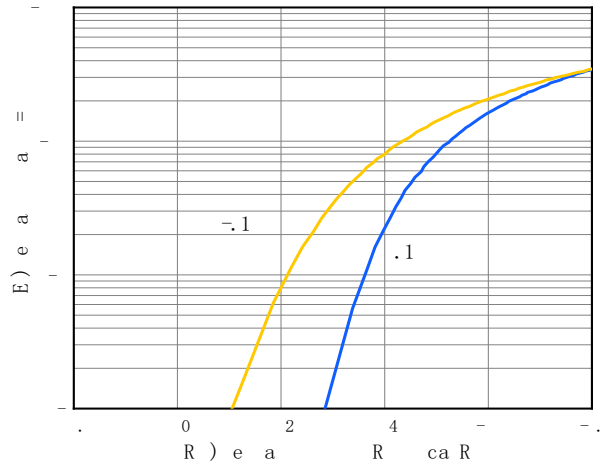


Fig9: Power Dissipation

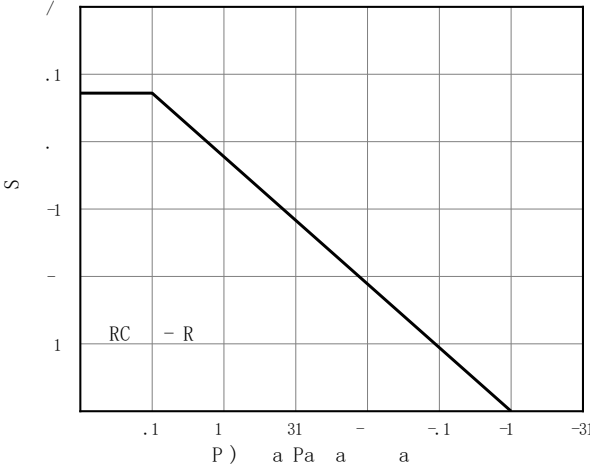


Fig10: Drain Current Derating

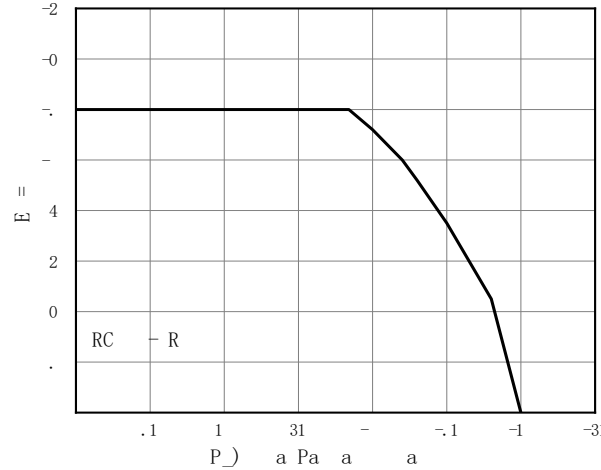


Fig11: Safe Operating Area

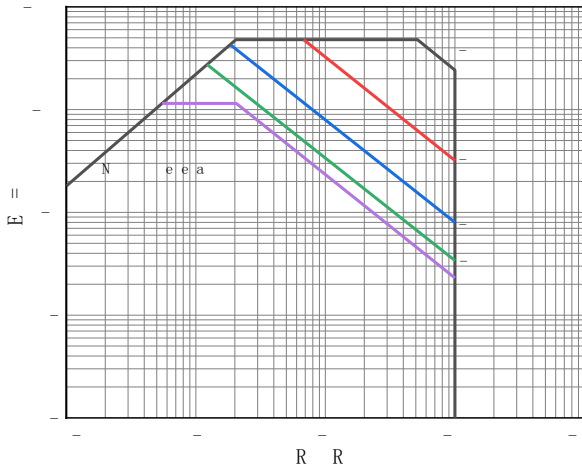
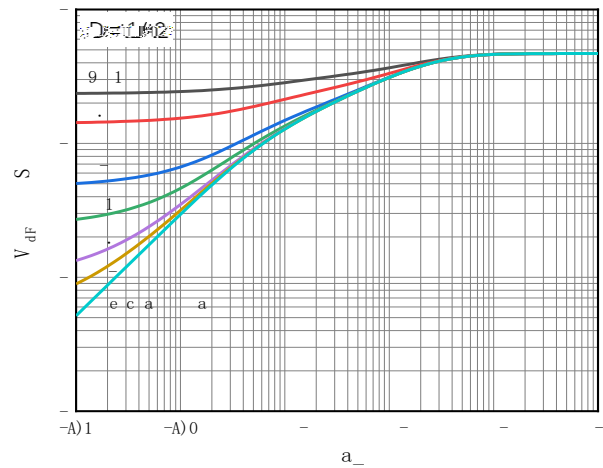
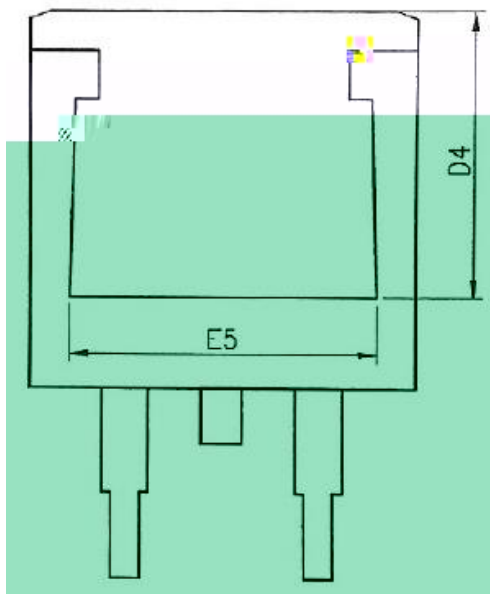
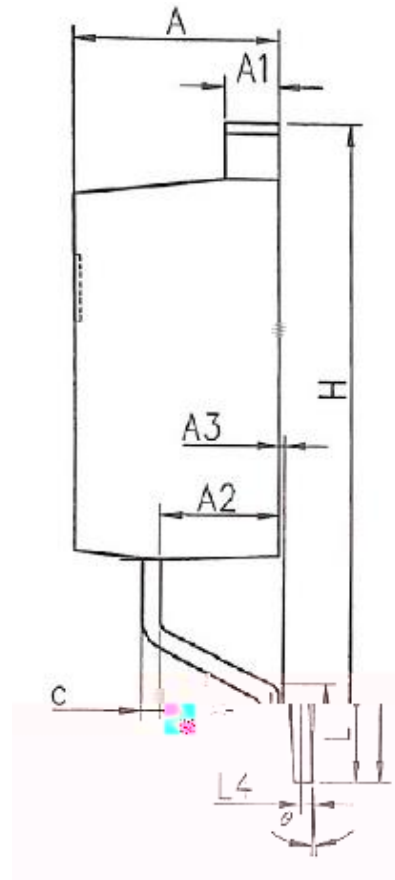
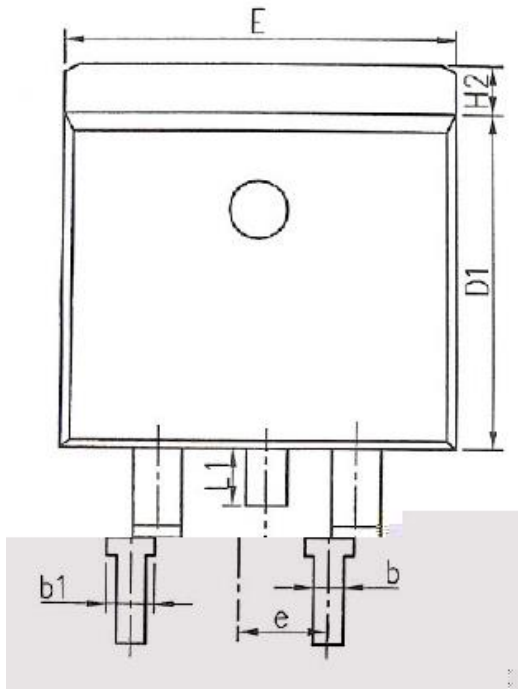


Fig12: Max. Transient Thermal Impedance



**TO-220F package information**

**TO-263 package information**



SYMBOL	MM		
	MIN	NOM	MAX
A	4.37	4.57	4.77
A1	1.22	1.27	1.42
A2	2.49	2.69	2.89
A3			

**TO-220 package information**