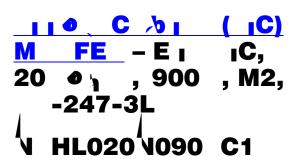
NSEMI



Features

- Typ. $R_{DS(on)} = 20 \text{ m}\Omega @ V_{GS} = 15 \text{ V}$
- Typ. $R_{DS(on)} = 16 \text{ m}\Omega @ V_{GS} = 18 \text{ V}$

V_{(BR)DSS} ReekSS

> TO-247-3LD CASE 340CX

MARKING DIAGRAM

			-5	V
Steady State	T _C = 25°C	I _{DC}	118	A
		P _{DC}	503	W
Steady State	T _C = 100°C	IDC	83	A
		P _{DC}	251	W
Pulsed Drain Current (Note 2) $T_A = 25^{\circ}C$			472	А
Operating Junction and Storage Temperature Range			– 55 to +175	°C
Source Current (Body Diode)			153	А
Single Pulse Drain–to–Source Avalanche Energy ($I_L = 23 A_{pk}$, L = 1 mH) (Note 3)			264	mJ
	State Steady State Note 2) d Storage Te Diode) -Source Ava	StateTSteady State $T_C = 100^{\circ}C$ Note 2) $T_A = 25^{\circ}C$ d Storage TemperatureDiode)-Source Avalanche	StateTState $T_C = 100^{\circ}C$ I_{DC} Steady State $T_C = 100^{\circ}C$ I_{DC} Note 2) $T_A = 25^{\circ}C$ I_{DM} d Storage Temperature T_J , T_{stg} Diode)Is-Source Avalanche E_{AS}	Steady State $T_C = 25^{\circ}C$ I_{DC} 118 P_{DC} 503 Steady State $T_C = 100^{\circ}C$ I_{DC} 83 P_{DC} 251 P_{DC} 251 Note 2) $T_A = 25^{\circ}C$ I_{DM} 472 d Storage Temperature T_J, T_{stg} -55 to $+175$ Diode) I_S 153-Source Avalanche E_{AS} 264

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted. 2. Repetitive rating, limited by max junction temperature.

3. E_{AS} of 162 mJ is based on starting $T_J = 25^{\circ}C$; L = 1 mH, $I_{AS} = 23$ A, $V_{DD} = 100 \text{ V}, V_{GS} = 15 \text{ V}.$

\$Y	= onsemi Logo
&Z	= Assembly Plant Code
&3	= Date Code (Year & Week)
&K	= Lot
NTHI 020N090SC1	= Specific Device Code

Table 1. THERMAL CHARACTERISTICS

Parameter	Symbol	Мах	Unit
Thermal Resistance Junction-to-Case (Note 1)	$R_{ extsf{ heta}JC}$	0.30	°C/W
Thermal Resistance Junction-to-Ambient (Note 1)			

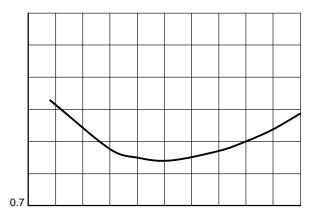
Table 2. ELECTRICAL CHARACTERISTICS (T_J = $25^{\circ}C$ unless otherwise stated)

Parameter	Symbol	Test Condition	Min	Тур	Мах	Unit		
DRAIN-SOURCE DIODE CHARACTERISTICS								
Reverse Recovery Time	t _{RR}	V _{GS} = -5/15 V, I _{SD} = 60 A, dI _S /dt = 1000 A/μs, V _{DS} = 720 V		28		ns		
Reverse Recovery Charge	Q _{RR}			199		nC		
Reverse Recovery Energy	E _{REC}			4		μJ		
Peak Reverse Recovery Current	I _{RRM}			14		А		
Charge Time	Та			16		ns		
Discharge Time	Tb			12		ns		

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL CHARACTERISTICS

Figure 1. On–Region Characteristics



T_J, JUNCTION TEMPERATURE (°C)

Figure 3. On–Resistance Variation with Temperature

Figure 2. Normalized On–Resistance vs. Drain Current and Gate Voltage

Figure 4. On-Resistance vs. Gate-to-Source Voltage

1		
1		
1		
1		
1		
1		
1		

TYPICAL CHARACTERISTICS (continued)

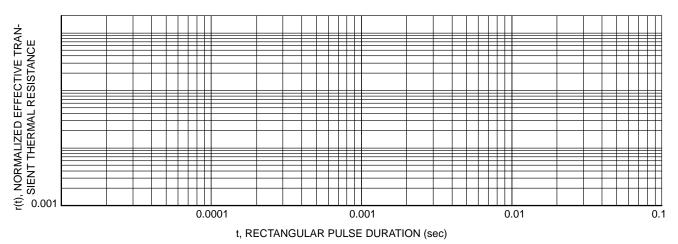
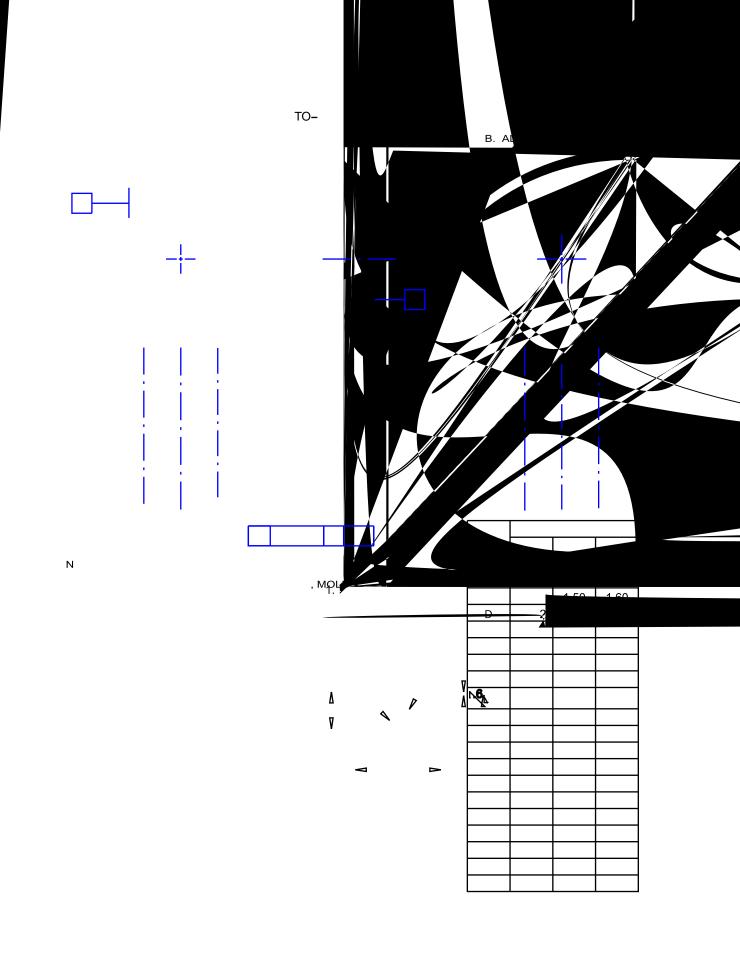


Figure 13. Junction-to-Ambient Transient Thermal Response Curve



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